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GLOBAL DATA MONITORING REPORT

August 1998

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CONTENTS

1. Introduction

2. Global Data Monitoring Statistics

3. Composite Observing Systems for the North Atlantic (COSNA)

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis. The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIFTER observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At RSMC Bracknell, for synoptic stations at or below a height of 500 metres, reported mean sea-level pressure is used in the statistics. If this is unavailable the mean sea-level pressure is calculated from the reported station-level pressure and temperature.

For synoptic stations above 500 metres, the mean sea-level pressure is calculated from the reported station-level pressure and temperature, or, if these are not available the height of a standard pressure-level (e.g.: 850 hPa or 700 hPa). If neither of these are available, the reported mean sea-level pressure is used.

Some stations vary their reporting practice according to the observation hour (e.g.: some stations in the CIS report both mean sea-level and station-level pressure at 00 & 12 UTC, but only mean sea-level pressure at 06 & 18 UTC). For monitoring purposes, reported mean sea-level pressure is stored separately from that calculated from station-level pressure or height of a standard pressure-level. Only statistics for the preferred method (see above) are presented in this report, and so for certain high-level stations, such as those from the CIS, approximately half of the number of observations actually received will appear in the statistics.

Aircraft observations

TABLE 4 contains a list of statistics calculated from data received from all airline carriers.

Figure 3 shows 10 degree lat/long box average numbers of aircraft reports (in AIREP/AMDAR code, including AIREPs, ACARs, AMDARs and ASDARs) received per day throughout the month at Bracknell and assimilated into model runs in the layer 70-500 hPa. Observations with a vector wind difference (compared with the model background field) of >60 m s^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4-7 show wind statistics for AIREP/ASDAR (in AIREP/AMDAR code, including AIREPs, ACARs, AMDARs and ASDARs) in the layer 70-500 hPa. Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-27 show satellite mean observation-background temperature differences for NOAA-11 soundings at 500 km resolution and figures 28-30 show the same statistics for NOAA-14. Data are plotted where there are > 30 observations in a 10 degree lat/long box.

N.B. 500 km SATEMs are no longer assimilated into the UKMO global Unified Model. Both 500 km and 120 km SATEMs were replaced on 16th April 1996 by 120 km resolution temperature profiles produced locally from the radiances disseminated by NESDIS (from NOAA-11 and NOAA-14).

Figure	Layer (hPa)
25/28	850-1000
26/29	100-300
27/30	30-50

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics (**Geopotential Height and Windspeed at 100 and 500 hPa**) for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

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Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.
4. February 96 Monitoring statistics for GOES-7 have been replaced by statistics for GOES-8 and GOES-9.
5. February 97 Monitoring statistics for Meteosat 5 have been replaced by statistics for Meteosat 6.
6. Sept 97 Monitoring statistics for NOAA-12 removed. Figures 25-27 now show data for NOAA-11
7. January 1998. Increase in resolution of UKMO global forecast model.
8. April 1998. GOES winds ceased on 2nd March 1998, and were replaced with GOES high resolution winds from 15th.
9. June 1998. Monitoring statistics for Meteosat-6 were replaced by monitoring statistics for Meteosat-7, from 3rd June.
10. June 1998. Corrections in our processing of radiosonde data resulted in a decrease in the number of 500hPa geopotential heights in Figure 8 of about 230 per 24 hours (compared with previous reports), and a small increase in the number of 300hPa winds in Figure 9.
11. July 1998. Meteosat-5 began transmitting winds from 2nd July, at 63 degrees East (over the Indian ocean), and this data is included in the statistics.
12. July 1998. GOES-9 (at 135W) was replaced mid-month by GOES-10 (initially at 105W, moving towards 135W).

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH: August 1998

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from Bracknell global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored :Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA :NOBS $\geq$ 20 , and one or more of the following:

1.| bias| $\geq$ 4 hPa (pressure),
$\geq$ 5 m s^{-1} (wind speed),
$\geq$ 30 degrees (direction).

2.SD $\geq$ 6 hPa (pressure),
$\geq$ 80 degrees (direction).

3.PGE $\geq$ 25

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE									
DBBI	ALL	P	SUR	695	1	0	4.3	4.4	6.2
DUWH	ALL	P	SUR	55	0	0	1.1	-4.4	4.5
ELTQ9	ALL	P	SUR	32	0	0	1.2	4.7	4.9
ELUB5	ALL	P	SUR	68	0	0	3.4	5.0	6.0
PCEX	ALL	P	SUR	20	0	0	1.1	6.4	6.5
PGWB	ALL	P	SUR	27	0	0	1.8	-4.8	5.2
P3YS5	ALL	P	SUR	47	0	0	1.1	4.7	4.8
UYPO	ALL	P	SUR	25	0	0	2.1	6.3	6.6
VCPK	ALL	P	SUR	24	7	29	3.9	-2.0	4.4
VGJC	ALL	P	SUR	22	6	27	4.3	-7.7	8.8
VRUS7	ALL	P	SUR	26	0	0	2.6	7.9	8.3
VRVI2	ALL	P	SUR	55	2	4	1.5	5.4	5.6
WCV7620	ALL	P	SUR	40	0	0	1.1	5.8	5.9
WDZB	ALL	P	SUR	87	0	0	1.1	-5.6	5.7
3FOW4	ALL	P	SUR	46	0	0	1.2	4.1	4.3
WIND SPEED									
DATG	ALL	SPEED	SUR	45	0	0	6.5	6.5	9.2
DGDD	ALL	SPEED	SUR	87	2	2	6.2	8.9	10.8
DQVK	ALL	SPEED	SUR	95	1	1	5.5	7.7	9.5
DVPV	ALL	SPEED	SUR	49	0	0	2.1	5.2	5.7
ELGG3	ALL	SPEED	SUR	40	2	5	5.5	8.6	10.2
GYZW	ALL	SPEED	SUR	55	0	0	5.7	6.5	8.7
JPAL	ALL	SPEED	SUR	84	0	0	6.5	6.1	8.9
MWVW6	ALL	SPEED	SUR	45	2	4	7.9	11.5	13.9
PJOX	ALL	SPEED	SUR	64	0	0	3.3	8.3	8.9
UCTP	ALL	SPEED	SUR	68	0	0	2.9	5.0	5.8
XYKX	ALL	SPEED	SUR	23	0	0	1.8	5.0	5.3
XYLA	ALL	SPEED	SUR	54	1	2	2.9	6.1	6.8
ZCBL5	ALL	SPEED	SUR	23	9	39	2.2	0.4	2.3
9VVU	ALL	SPEED	SUR	22	0	0	2.1	-5.0	5.4
WIND DIRECTION									
ELVH7	ALL	DIRN.	SUR	20	1	5	103.7	-29.5	107.8
LAQT2	ALL	DIRN.	SUR	20	1	5	41.0	31.3	51.6
13008	ALL	DIRN.	SUR	66	0	0	17.2	34.2	38.3
45135	ALL	DIRN.	SUR	36	0	0	25.0	91.5	94.9
51009	ALL	DIRN.	SUR	40	0	0	12.3	-30.3	32.7
63104	ALL	DIRN.	SUR	20	0	0	106.0	20.0	107.9
63112	ALL	DIRN.	SUR	22	0	0	82.9	27.8	87.5

AVAILABILITY – SHIP/SYNOP – AUGUST 1998

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 20864

FIGURE 1

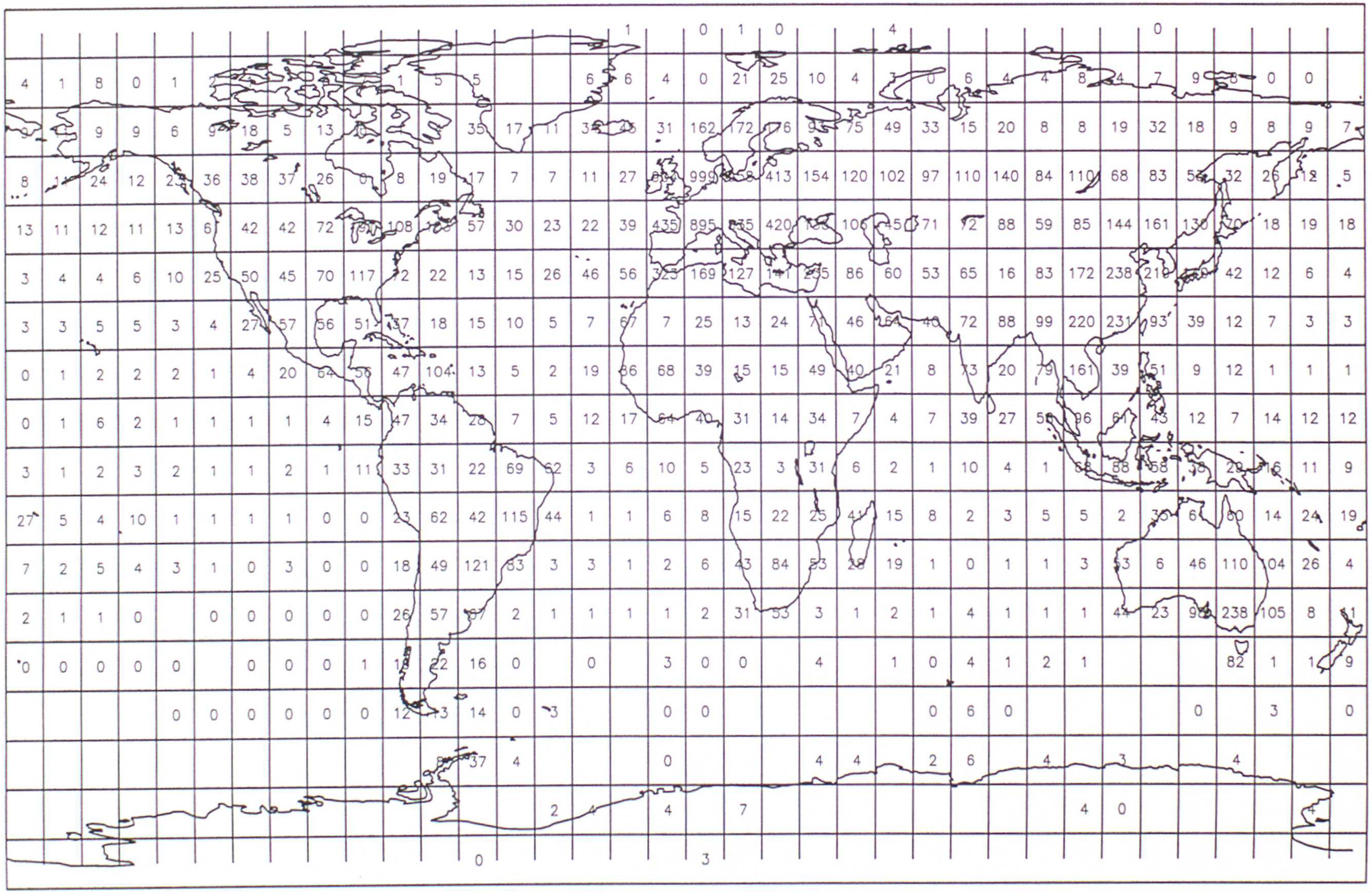


TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH: August 1998

Monitoring procedures

Period		:One calendar month.	
Data monitored		:Reports from each unique identifier for drifting buoys.	
Standard of comparison		:Background field from Bracknell global model.	
Position		:Average latitude and longitude for period.	
Observation times		:00, 06, 12, 18 UTC	
Elements monitored		:Mean sea level pressure (hPa). :Wind speed (m s^{-1}). :Wind direction (degrees).	
Parameters monitored			
	:NOBS	:Number of observations received excluding duplicates.	
	:NGE	:Number of observations with gross errors.	
	:PGE	:Percentage of observations with gross errors.	
	:SD	:SD of difference of observations from background values excluding those with gross errors.	
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**	
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.	
GROSS ERROR LIMIT	:15 hPa :25 m s^{-1}	(pressure) (vector wind)	
SELECTION CRITERIA :	NOBS	≥ 20 , and one or more of the following:	
	1.| bias|	≥ 4 hPa ≥ 5 m s^{-1} ≥ 30 degrees	(pressure), (wind speed), (direction).
	2.SD	≥ 6 hPa ≥ 80 degrees	(pressure), (direction).
	3.PGE	≥ 25.	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
33572	-36.7	3.7	ALL	P	SUR	181	13	7	4.2	4.6	6.3
33947	-41.7	-24.1	ALL	P	SUR	263	11	4	7.4	0.5	7.4
46960	17.5	167.2	ALL	P	SUR	208	0	0	1.5	-6.3	6.5
48576	79.0	-162.3	ALL	P	SUR	257	178	69	4.8	7.1	8.6
54927	-34.6	-137.7	ALL	P	SUR	50	40	80	1.9	-11.6	11.7
56531	-28.2	86.0	ALL	P	SUR	38	16	42	8.8	-6.6	11.0
62557	43.9	-5.5	ALL	P	SUR	35	16	46	6.6	8.0	10.4
66512	59.3	54.1	ALL	P	SUR	240	3	1	3.6	-9.8	10.4
WIND SPEED											
21531	31.9	-174.4	ALL	SPEED	SUR	503	0	0	1.5	-5.1	5.3
WIND DIRECTION											
41636	18.6	-50.4	ALL	DIRN.	SUR	493	0	0	18.1	-38.7	42.8
46632	53.1	-153.4	ALL	DIRN.	SUR	544	0	0	30.4	-31.3	43.7
52534	10.1	125.7	ALL	DIRN.	SUR	191	0	0	97.5	-37.9	104.6
52540	13.4	144.7	ALL	DIRN.	SUR	218	0	0	28.2	46.9	54.8
52624	-14.1	138.6	ALL	DIRN.	SUR	111	0	0	47.2	31.3	56.6
52657	26.4	127.8	ALL	DIRN.	SUR	76	0	0	47.8	-80.4	93.6

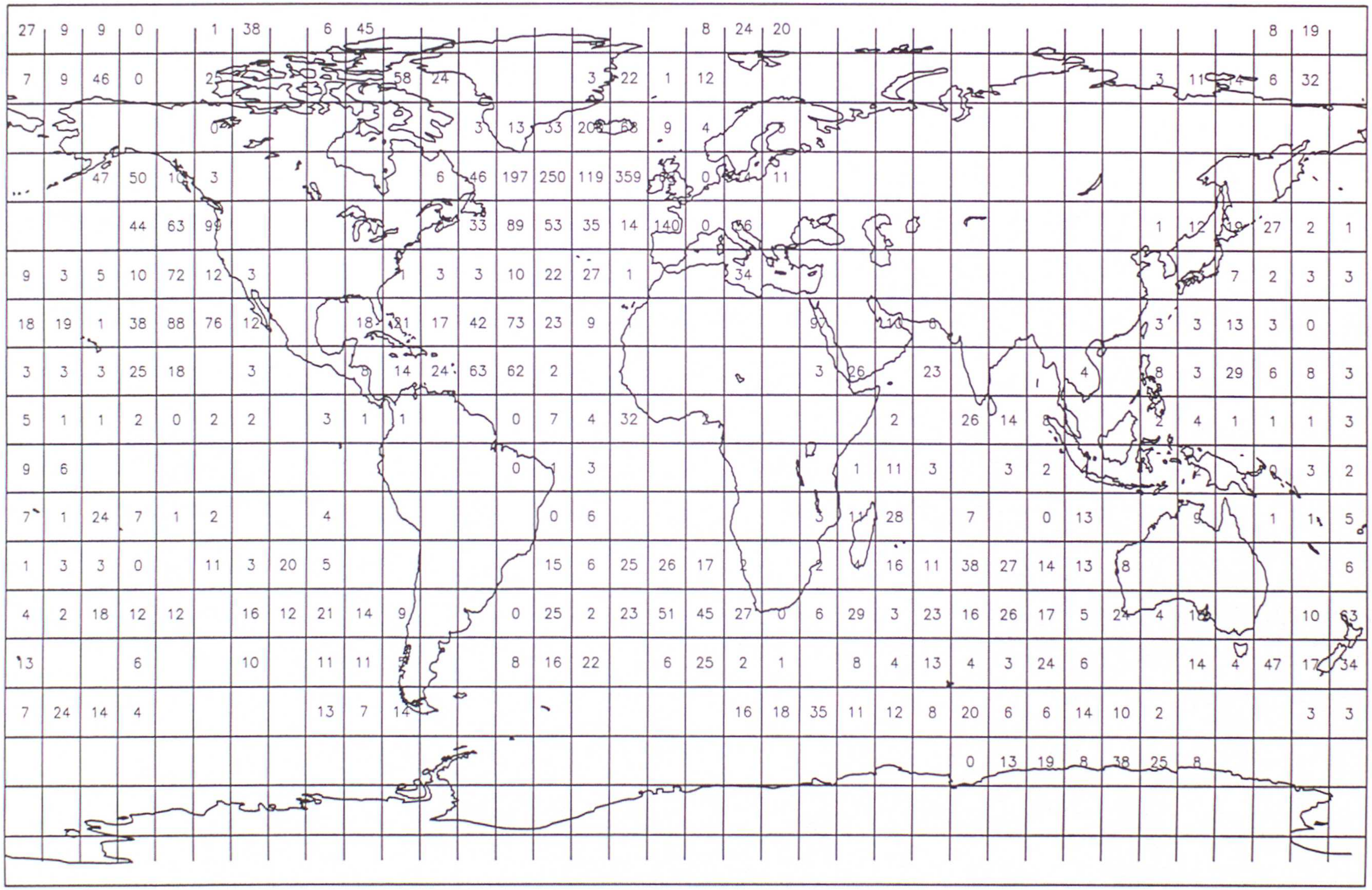
AVAILABILITY – DRIFTER – AUGUST 1998

FIGURE 2

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 5665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7 9 46 0 25 58 24 3 22 1 12 3 11 4 6 32
0 3 13 33 203 68 9 4 8
47 50 10 3 6 46 197 250 119 359 66 0 4 11
44 63 99 33 89 53 35 14 140 0 56 1 12 19 27 2 1
9 3 5 10 72 12 3 1 3 3 10 22 27 1 34 7 2 3 3
18 19 1 38 88 76 12 18 21 17 42 73 23 9 1 97 10 6 3 3 13 3 0
3 3 3 25 18 3 8 14 24 63 62 2 3 26 23 4 8 3 29 6 8 3
5 1 1 2 0 2 2 3 1 1 0 7 4 32 2 2 26 14 8 2 4 1 1 1 3
9 6 0 1 3 1 11 3 3 2 0 3 2
7 1 24 7 1 2 4 0 6 3 11 28 7 0 13 9 1 1 5
1 3 3 0 11 3 20 5 15 6 25 26 17 2 2 4 16 11 38 27 14 13 8 6
4 2 18 12 12 16 12 21 14 9 0 25 2 23 51 45 27 0 6 29 3 23 16 26 17 5 24 4 13 10 63
13 6 10 11 11 8 16 22 6 25 2 1 8 4 13 4 3 24 6 14 4 47 17 34
7 24 14 4 13 7 14 16 18 35 11 12 8 20 6 6 14 10 2 3 3
0 13 19 8 38 25 8

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH: August 1998

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1.| bias|	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60010	28.3N	16.5W	2367	S7	87	0	0	24	1.4	-6.8	6.9
60445	36.2N	5.4E	1081	S8	113	1	1	0	0.9	4.8	4.9
60468	35.6N	6.2E	1052	S8	87	87	100	0	0.0	0.0	0.0
60511	35.3N	1.4E	1127	S8	117	68	58	0	0.6	14.2	14.2
60535	34.7N	3.3E	1144	S8	91	0	0	0	1.0	-5.4	5.5
60571	31.6N	2.2W	773	S8	120	1	1	0	1.0	-4.1	4.2
60670	24.6N	9.5E	1054	S8	112	3	3	4	1.4	9.1	9.2
63330	13.5N	39.5E	2070	MS	52	52	100	0	0.0	0.0	0.0
63333	11.1N	39.7E	1903	MS	49	0	0	8	0.8	4.3	4.4
63334	10.3N	37.7E	2515	MS	51	2	4	2	1.0	10.3	10.3
63402	7.7N	36.8E	1725	MS	88	3	3	0	1.0	8.2	8.3
63450	9.0N	38.8E	2354	MS	98	0	0	0	0.8	5.0	5.1
63471	9.6N	41.9E	1260	MS	60	1	2	0	1.1	10.1	10.2
63478	5.9N	43.6E	295	MS	26	0	0	0	0.8	6.7	6.7
63661	1.0N	35.0E	1890	8	101	2	2	2	1.6	4.0	4.3
68030	18.5S	25.6E	1071	8	52	0	0	4	1.1	4.2	4.3
68343	27.6S	25.6E	1228	S8	82	0	0	100	0.9	-9.4	9.4
68396	26.5S	31.3E	641	S8	60	0	0	0	1.2	4.0	4.2
68442	29.1S	26.3E	1359	S8	97	0	0	94	0.9	-4.6	4.7
69679	43.9N	18.3E	1557	MS	102	102	100	0	0.0	0.0	0.0

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
30320	56.9N	105.7E	669	MS	108	57	53	0	1.0	1.2	1.6
30554	54.5N	113.6E	995	MS	107	0	0	60	4.5	6.5	7.9
40743	36.2N	57.7E	941	MS	113	0	0	0	0.9	-4.4	4.5
40762	35.3N	59.2E	1333	MS	114	1	1	1	2.1	-12.1	12.3
41254	23.1N	57.7E	1755	S8	73	73	100	0	0.0	0.0	0.0
41304	18.1N	55.2E	269	MS	54	14	26	0	1.1	-1.1	1.6
41535	34.2N	73.3E	1308	8	46	0	0	0	1.0	-5.1	5.2
44416	28.6N	81.6E	720	MS	75	1	1	1	1.8	5.2	5.5
44477	27.0N	87.4E	1445	M	68	68	100	0	0.0	0.0	0.0
52602	38.8N	93.4E	2734	S	123	0	0	0	0.8	-6.5	6.5
53588	39.0N	113.5E	2898	S	122	122	100	0	0.0	0.0	0.0
54587	39.1N	123.2E	156	M	118	1	1	1	0.9	-4.1	4.2
56144	31.8N	98.6E	3184	S	107	0	0	0	0.8	-4.5	4.6
56385	29.5N	103.3E	3049	S	123	0	0	0	1.1	-5.0	5.1
56444	28.5N	98.9E	3488	S	120	52	43	8	0.7	13.3	13.3
56462	29.0N	101.5E	2994	S	122	0	0	0	0.9	8.2	8.2
56954	22.6N	99.9E	1054	M	122	0	0	2	1.0	4.1	4.2

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	128	MS	30	0	0	3	1.6	-5.1	5.3
82704	7.6S	72.7W	170	MS	66	0	0	0	1.4	-5.3	5.5
83214	10.3S	54.9W	285	MS	63	0	0	0	1.4	-7.3	7.4
83235	12.4S	46.4W	604	MS	89	0	0	1	1.1	6.3	6.4
83319	14.7S	52.4W	315	MS	50	0	0	0	0.9	-4.9	5.0
83332	14.1S	46.4W	826	MS	84	10	12	2	1.7	13.3	13.4
83408	14.3S	43.8W	447	MS	78	2	3	3	0.8	9.9	9.9
83423	16.7S	49.3W	741	MS	88	1	1	0	0.8	-5.6	5.7
83488	17.8S	42.9W	1097	S	80	80	100	0	0.0	0.0	0.0
83531	18.6S	46.5W	940	MS	85	1	1	0	0.7	-6.9	6.9
83587	19.9S	43.9W	850	MS	82	0	0	0	0.8	-7.0	7.0
83704	22.3S	53.9W	369	MS	66	2	3	0	2.7	-8.7	9.1
83773	23.1S	48.9W	793	S	37	0	0	0	1.2	-5.8	5.9
84401	5.2S	80.6W	49	MS	85	0	0	0	1.2	5.5	5.6
84455	6.5S	76.4W	281	MS	70	0	0	3	1.8	4.8	5.1

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
84472	7.1S	78.5W	2620	S	43	0	0	0	0.9	-6.1	6.2
84501	8.1S	79.0W	26	MS	85	0	0	0	1.2	4.0	4.2
84628	12.0S	77.1W	12	MS	99	0	0	0	1.0	4.0	4.1
84686	13.6S	72.0W	3248	S	81	0	0	0	1.2	-6.6	6.7
84735	15.5S	70.2W	3826	S	58	0	0	0	1.1	-4.0	4.1
84782	18.1S	70.3W	468	MS	88	0	0	0	1.4	7.7	7.8
85312	19.8S	63.9W	992	S	43	34	79	47	0.9	-14.0	14.0
85406	18.3S	70.3W	55	M	108	0	0	0	1.2	5.3	5.4

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
76118	30.4N	109.7W	1040	MS	40	0	0	3	0.8	-9.2	9.2
76551	21.5N	106.6W	4	MS	29	0	0	14	2.2	4.3	4.8
76625	20.6N	100.4W	1813	MS	56	0	0	4	1.2	-7.3	7.4
76632	20.1N	98.7W	2417	MS	31	1	3	0	0.5	-5.2	5.2
76658	19.2N	103.7W	494	MS	46	0	0	0	1.1	6.3	6.4
76698	19.6N	88.0W	20	MS	83	0	0	0	1.0	-6.9	7.0
76762	17.5N	99.5W	1865	MS	78	78	100	0	0.0	0.0	0.0
76775	17.1N	96.7W	1550	S	23	0	0	0	0.8	5.0	5.1
76845	16.7N	92.6W	2276	MS	99	98	99	0	0.0	14.9	14.9
78718	14.4N	87.6W	626	MS	64	41	64	0	0.8	-13.9	13.9

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
94328	22.4S	133.6E	623	MS	74	0	0	0	0.7	6.6	6.6
94955	41.6S	145.7E	684	MS	114	114	100	0	0.0	0.0	0.0
95952	41.9S	145.6E	560	MS	111	111	100	0	0.0	0.0	0.0

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
02045	67.8N	20.4E	408	M	101	101	100	0	0.0	0.0	0.0
16227	41.9N	13.6E	655	MS	159	156	98	0	0.0	-14.2	14.2
16614	40.4N	21.3E	604	MS	102	0	0	0	1.0	-6.3	6.4
17042	41.4N	41.4E	33	M	113	0	0	5	1.0	4.0	4.1
17092	39.8N	39.5E	1218	S8	121	0	0	0	1.4	5.9	6.1

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89004	71.7S	2.8W	815	M	124	7	6	1	4.1	-8.7	9.6
89264	71.4S	68.9W	780	S	24	0	0	0	3.2	6.1	6.9
89345	81.7S	148.8W	620	S	395	3	1	0	3.1	-8.0	8.6
89744	74.0S	43.0E	3353	S	276	0	0	0	1.5	4.1	4.4

TABLE 4

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: August 1998

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :70.0 - 500.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP ≥ 20

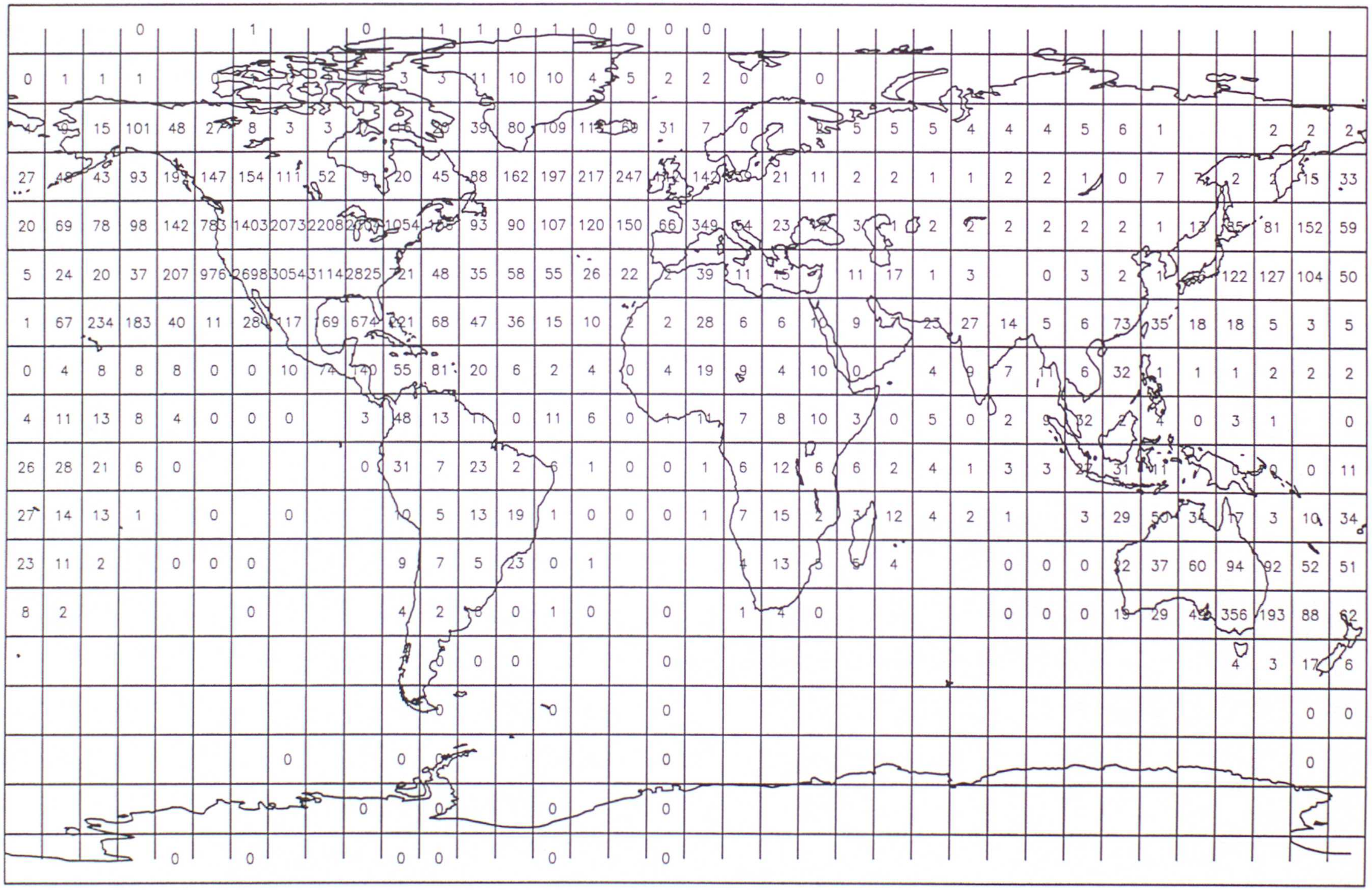
NB: US ACARs and ADS data are shown at the bottom of the table as US ACAR and ADS respectively.

		TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAA	106	2	18	2.2	0.8	99	1	14	0	7.4	1.5
AAH	61	2	28	1.8	0.2	60	0	25	0	6.0	0.9
AAL	6317	1	30	1.8	-0.2	5134	0	24	0	7.8	0.9
AAR	1636	1	8	1.7	-0.7	1531	0	8	0	8.1	0.6
ACA	2845	1	10	2.1	0.0	2597	0	5	0	6.8	0.7
ACI	85	1	46	1.8	0.1	82	1	46	0	8.1	-0.1
AEA	642	1	26	2.3	0.8	489	0	17	0	7.7	1.1
AEL	931	1	15	1.3	-0.6	860	0	16	0	7.8	0.1
AEY	170	0	4	1.8	0.6	135	0	4	0	8.0	1.2
AFL	515	1	12	2.9	0.9	476	0	5	0	7.4	0.4
AFR	1806	1	12	1.8	0.1	1640	0	12	0	7.9	1.0
AIH	209	2	8	1.5	0.1	126	0	5	0	9.3	1.4
AJM	120	2	8	1.5	-0.4	101	0	4	0	9.4	1.6
AMT	1463	1	46	1.7	0.9	1308	0	48	0	7.1	1.0
AMX	336	1	4	1.5	0.1	301	1	7	0	8.3	0.7
ANA	1266	0	5	1.6	-0.4	1205	0	5	0	7.5	0.7
ANZ	3622	1	35	1.7	-0.1	3538	0	35	0	8.1	0.9
AOM	931	1	8	1.8	0.9	806	0	8	0	7.4	1.3
ARG	47	11	43	3.7	-0.5	53	0	55	0	27.3	13.4
ASY	49	2	33	1.0	0.3	45	0	31	0	6.9	-0.2
AVA	462	1	3	1.7	0.1	418	0	5	0	8.7	1.1
AVN	92	1	3	1.4	0.2	91	0	5	0	9.6	-1.3
AXA	136	1	37	1.8	-0.3	135	0	37	0	8.6	1.0
AZA	474	1	24	2.5	0.1	381	0	14	0	8.3	1.0
BAL	865	0	15	1.5	-0.4	764	0	16	0	8.0	0.7
BAW	1697	1	18	2.1	-0.2	1459	0	13	0	7.5	1.1
BBB	54	0	11	1.3	-0.8	44	0	7	0	7.2	1.3
BWA	389	2	14	1.9	1.3	307	0	8	0	7.9	1.4
CAL	2274	1	7	1.7	-0.2	2169	0	8	0	8.3	0.7
CCA	264	0	8	2.0	0.4	249	0	52	0	9.9	-0.1
CDN	2729	2	12	1.8	0.1	2493	0	10	0	8.3	1.1
CES	433	1	10	1.8	0.2	412	0	12	0	10.1	0.5
CFG	1001	0	5	1.7	-0.9	878	0	4	0	7.3	0.4
CKS	390	0	40	1.2	0.2	351	0	43	0	5.8	1.0
CKT	156	1	11	1.8	1.0	133	0	7	0	6.6	0.2
CLX	407	1	10	2.3	-0.4	386	0	6	0	8.9	0.9
CMI	580	0	7	1.6	0.6	533	0	8	0	8.1	0.8
CMM	630	1	10	1.9	0.1	579	0	5	0	6.9	1.1
COA	1872	1	33	1.6	0.1	1593	0	32	0	10.1	1.5
CPA	97	1	6	2.1	-0.4	98	0	9	0	9.2	0.5
CRL	751	1	5	1.6	0.7	637	0	4	0	8.1	1.3
CSN	27	0	26	1.3	0.5	25	4	28	0	4.2	0.5
CTB	435	0	2	1.7	-0.6	434	0	3	0	7.6	0.7
CTM	81	2	20	2.2	-0.6	79	0	18	0	7.8	0.8
CUB	534	1	10	2.3	1.2	454	0	11	0	10.0	1.3
DAF	40	0	0	2.4	-1.5	39	0	0	0	7.5	2.7
DAL	6199	1	40	2.3	0.4	4848	0	34	0	7.0	0.9
DBY	295	0	4	1.4	-0.9	266	0	3	0	6.4	0.4
DHL	159	11	100	6.0	-4.0	110	0	25	0	10.7	0.1
DLH	3019	1	16	2.1	-0.1	2696	0	11	0	7.7	1.1
EIA	365	2	37	1.4	0.0	354	0	38	0	8.0	1.0
ELY	200	2	12	1.8	-0.1	189	0	17	0	12.4	1.3
EVA	2541	0	5	1.4	-0.4	2423	0	6	0	7.6	0.6
EWW	99	0	24	2.7	0.3	86	0	100	0	16.9	2.8
FDX	1326	1	22	1.6	0.6	1175	0	19	0	7.2	0.7
FIN	701	0	23	2.3	0.4	532	0	12	0	8.1	0.8
FJI	883	4	41	1.7	0.2	845	0	38	0	8.0	0.2
FOM	206	4	40	1.7	0.4	195	0	38	0	9.1	1.1
GAF	142	0	32	2.6	-0.1	105	0	18	0	8.2	2.5

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
GCO	67	0	28	1.4	0.7	64	0	25	0	6.0	1.1
GHA	91	1	7	1.8	0.5	65	0	9	0	7.7	1.8
GIA	54	4	24	1.8	0.9	54	0	26	0	14.9	2.1
GRL	35	0	0	1.3	0.2	34	0	0	0	5.5	1.3
GTI	70	1	26	2.9	0.8	64	0	13	0	7.2	0.4
HAL	3296	0	41	1.3	0.0	3007	0	43	0	7.9	0.9
HLF	104	0	8	1.4	-0.8	94	0	4	0	8.2	1.4
HRH	145	3	66	1.3	0.1	140	0	65	0	9.2	-0.2
IBE	2966	2	23	2.1	0.5	2486	0	17	0	8.0	1.1
ICE	951	2	32	3.1	0.6	734	0	17	0	8.0	1.0
JAA	22	0	0	2.0	1.7	22	0	0	0	7.7	2.1
JAL	7660	0	5	1.6	0.1	7206	0	6	0	8.0	1.0
JAZ	73	0	3	1.8	1.2	65	0	5	0	8.2	1.8
JKK	272	1	24	1.9	-0.4	207	0	21	0	8.6	0.7
KAL	4456	1	7	1.6	-0.4	4214	0	8	0	8.1	0.7
KIW	63	5	48	2.8	1.9	58	0	45	0	12.8	0.0
KLM	3474	0	22	1.9	0.0	3172	0	20	0	7.5	0.9
LAN	48	8	27	2.7	-0.3	47	0	23	0	13.6	1.1
LAP	41	22	68	5.6	-4.1	40	8	100	0	38.8	28.0
LDA	169	0	31	1.9	-0.7	125	0	26	0	7.2	0.7
LDI	528	1	27	1.8	-1.0	433	0	23	0	7.4	0.6
LEI	196	1	11	1.7	0.6	162	0	7	0	7.8	1.2
LIB	421	2	5	1.7	0.9	371	0	3	0	7.2	1.1
LOT	341	1	31	2.3	-1.2	250	0	21	0	9.5	1.3
LTU	893	0	22	1.7	-0.1	703	0	16	0	7.5	0.5
LXR	180	2	12	1.5	0.7	148	0	16	0	9.0	0.8
MAH	44	2	18	2.3	0.2	37	0	5	0	7.3	0.3
MAS	426	0	7	1.7	-0.2	435	0	8	0	9.4	0.8
MDA	199	1	1	1.2	0.2	175	0	1	0	7.2	1.4
MON	121	0	15	1.4	0.1	101	0	9	0	8.6	1.4
MPD	419	1	13	1.9	0.7	324	0	7	0	7.7	1.5
MPH	1030	0	7	1.9	-0.6	908	0	4	0	7.4	0.6
NCA	505	1	4	1.5	0.2	485	0	5	0	8.2	0.4
NWA	11028	0	13	1.8	0.4	10152	0	12	0	7.7	0.8
OAL	31	0	13	2.5	1.6	28	0	11	0	7.3	3.1
PAC	224	3	29	1.8	0.1	197	1	31	0	8.9	0.7
PAL	818	0	4	1.5	-0.2	758	0	5	0	8.8	0.6
PAO	408	0	53	1.6	-0.3	406	0	53	0	7.1	0.9
PAQ	27	0	0	1.4	-0.2	27	0	0	0	8.3	-1.2
QFA	1897	0	32	1.8	0.0	1864	0	32	0	7.9	0.8
RAF	99	0	3	1.9	0.3	98	0	39	0	9.6	0.9
RAM	121	0	7	1.6	-0.6	106	1	5	0	6.7	0.9
RCH	589	1	23	2.3	0.4	505	1	21	0	8.7	1.3
RJA	86	1	27	2.4	0.3	64	0	16	0	6.8	0.2
RKA	135	0	3	1.4	-0.7	75	0	3	0	6.2	0.8
ROY	454	1	18	2.3	-0.3	390	0	12	0	9.4	1.2
RRR	114	3	20	2.4	-0.3	98	2	18	0	11.7	1.3
RSL	22	5	23	3.1	0.4	20	0	25	0	20.3	5.7
RYN	581	0	46	1.8	0.1	504	0	49	0	6.6	0.3
SAA	274	0	4	1.5	0.2	240	0	3	0	6.6	0.8
SAB	74	1	22	2.0	0.4	65	0	12	0	6.7	0.9
SAS	1402	0	1	1.9	-0.2	1386	0	2	0	7.7	0.4
SCX	33	0	45	0.7	0.0	27	0	56	0	4.6	1.5
SIA	1513	1	5	1.7	-0.8	1453	0	6	0	7.4	0.4
SLR	151	0	12	1.5	-0.3	143	0	13	0	8.7	0.9
SOL	56	2	5	0.8	0.3	54	0	9	0	12.6	0.1
SVA	179	2	15	2.1	-0.6	181	0	11	0	8.9	0.3
SWR	200	2	30	1.9	0.6	153	0	17	0	7.4	2.8
TAP	713	1	5	1.5	-0.5	654	0	6	0	8.8	0.5

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
TBA	49	4	16	2.7	0.1	49	0	20	0	17.2	-3.4
THA	625	1	8	1.4	-0.2	605	0	9	0	8.5	0.2
TOW	204	1	30	1.9	0.3	152	0	18	0	7.4	1.4
TPA	28	4	25	1.0	0.2	23	0	13	0	5.0	-0.8
TSC	353	2	22	2.5	0.7	295	0	12	0	7.6	1.5
TWA	1972	0	35	2.2	0.3	1450	0	26	0	7.8	1.1
UAL	121557	1	88	1.1	-0.1	119860	0	88	0	5.3	0.3
UPS	1272	1	37	1.8	0.0	1139	0	35	0	7.1	0.6
USA	303	0	25	2.1	-0.1	229	0	16	0	8.9	0.7
VIR	374	1	17	2.3	-0.4	317	0	7	0	7.2	0.8
VKG	68	0	7	1.9	0.1	66	0	5	0	6.5	1.1
VRG	329	4	36	2.2	0.9	303	0	100	0	12.0	0.9
VSP	242	1	15	1.9	0.4	229	0	15	0	9.1	0.5
VVR	77	0	42	2.4	0.3	70	0	41	0	8.1	1.5
WOA	85	0	1	1.5	0.5	76	0	4	0	7.6	1.0
ZKN	134	0	1	1.3	0.0	134	0	1	0	5.7	0.3
AN	19452	0	1	1.4	0.1	19452	0	0	0	6.1	1.0
BA	24539	1	1	1.5	0.5	24513	0	8	0	6.3	0.6
IT	721	0	47	0.9	0.2	721	0	47	0	6.2	0.8
KL	11470	0	13	1.5	0.9	11468	0	41	0	6.2	0.8
LH	3354	0	1	1.7	0.9	3492	0	1	0	6.8	0.7
MK	2702	0	0	2.0	1.6	2696	0	0	0	8.2	0.1
OZ	24	0	38	2.1	-0.1	23	0	39	0	10.2	-1.2
QF	15385	0	1	1.2	0.4	15382	0	1	0	6.1	0.9
SA	3004	0	71	2.1	1.6	3002	0	0	0	7.3	1.2
SV	1791	0	35	1.6	1.4	1782	0	35	0	5.7	0.5
UA	4275	1	35	1.3	0.0	4377	0	34	0	6.9	0.7
WA	871	6	10	1.8	0.6	851	5	100	0	9.1	-1.2
XX	2509	2	4	1.5	0.5	3180	0	100	0	11.8	2.4
N	625	2	29	2.3	0.6	547	0	28	0	8.6	1.2
ADS	54	0	0	0.6	0.3	54	0	93	0	5.1	-0.2
US ACARS	553315	0	8	1.1	0.2	553295	0	9	0	5.6	0.6

MEAN DAILY COUNT OF AIRCRAFT 70 – 500 HPA FIGURE 3
AUGUST 1998
OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED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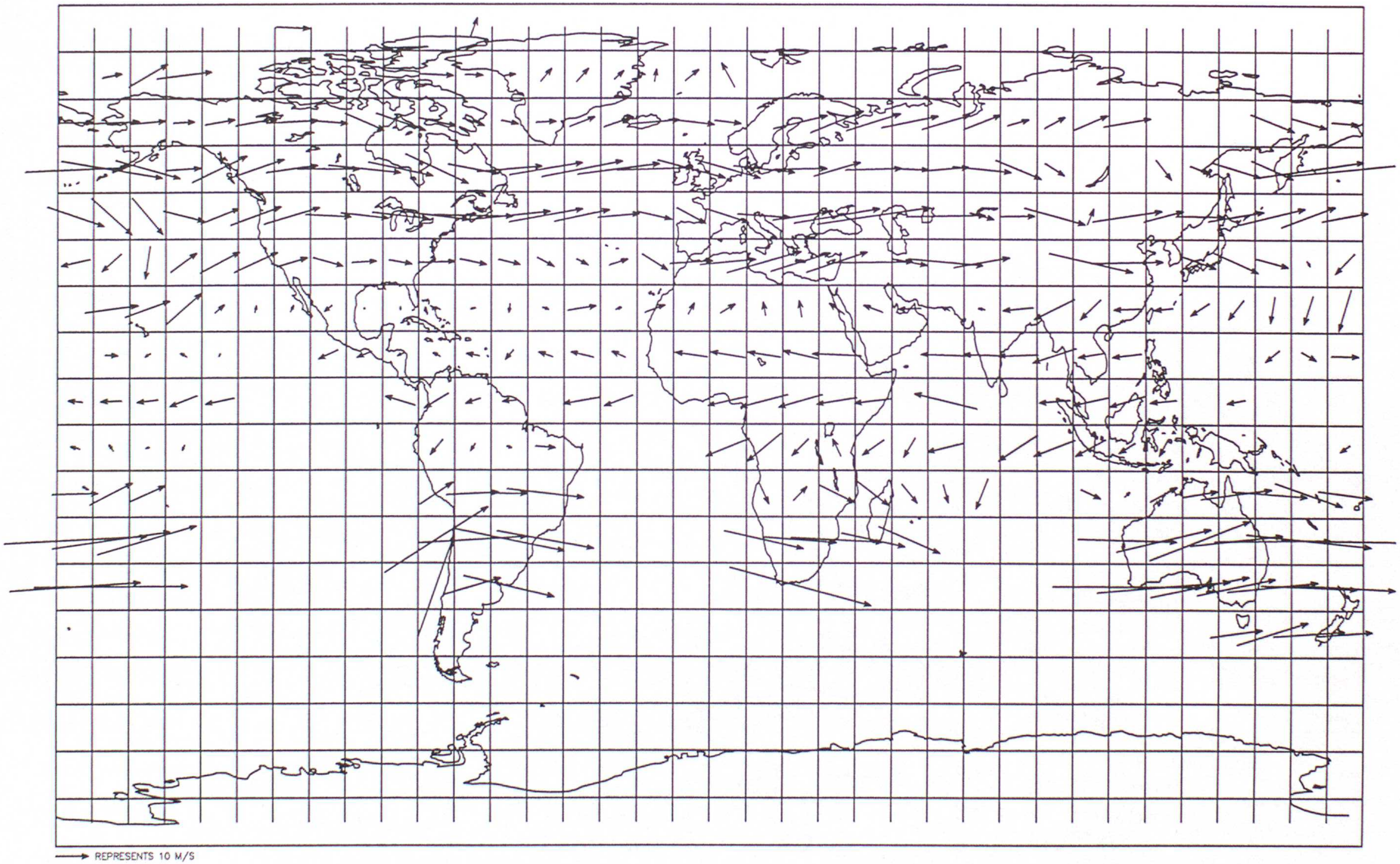
0 1 1 1 3 3 11 10 10 4 5 2 2 0 0
15 101 48 27 8 3 3 39 80 109 113 31 7 0 5 5 5 4 4 4 5 6 1 2 2 2
27 43 93 147 154 111 52 20 45 88 162 197 217 247 142 21 11 2 2 1 1 2 2 1 0 7 2 15 33
20 69 78 98 142 783 1403 2073 2208 1054 93 90 107 120 150 66 349 23 2 2 2 2 2 1 81 152 59
5 24 20 37 207 976 2698 3054 3114 2825 21 48 35 58 55 26 22 39 11 11 17 1 3 0 3 2 122 127 104 50
1 67 234 183 40 11 28 117 169 674 121 68 47 36 15 10 2 28 6 6 9 27 14 5 6 73 35 18 18 5 3 5
0 4 8 8 8 0 0 10 74 140 55 81 20 6 2 4 0 4 19 9 4 10 0 4 7 11 6 32 1 1 2 2 2
4 11 13 8 4 0 0 0 3 48 13 0 11 6 0 7 8 10 3 0 5 0 2 32 0 3 1 0
26 28 21 6 0 0 31 7 23 2 1 0 0 1 6 12 6 6 2 4 1 3 3 31 0 11
27 14 13 1 0 0 5 13 19 1 0 0 0 1 7 15 12 4 2 1 3 29 3 10 34
23 11 2 0 0 0 9 7 5 23 0 1 13 4 0 0 0 37 60 94 92 52 51
8 2 0 4 2 0 1 0 0 1 0 0 0 0 29 356 193 88 62
0 0 0 0 4 3 17 6
0 0 0 0
0 0 0 0
0 0 0 0 0
0 0 0 0 0 0

AIRCRAFT MEAN WINDS BETWEEN 70 AND 500 HPA FIGURE 4
AUGUST 1998
OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



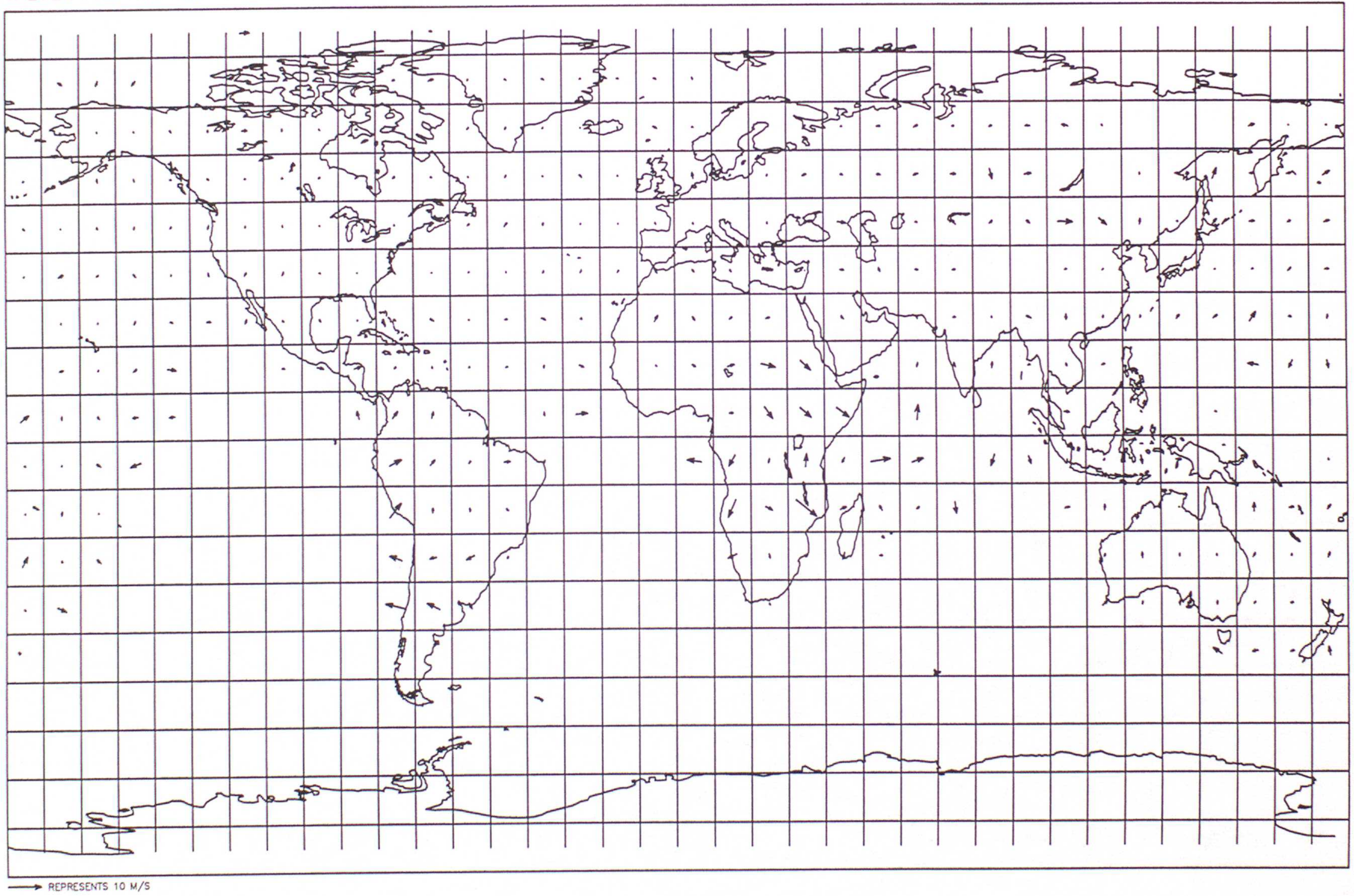
AIRCRAFT MEAN O−B WINDS BETWEEN 70 AND 500 HPA

FIGURE 5

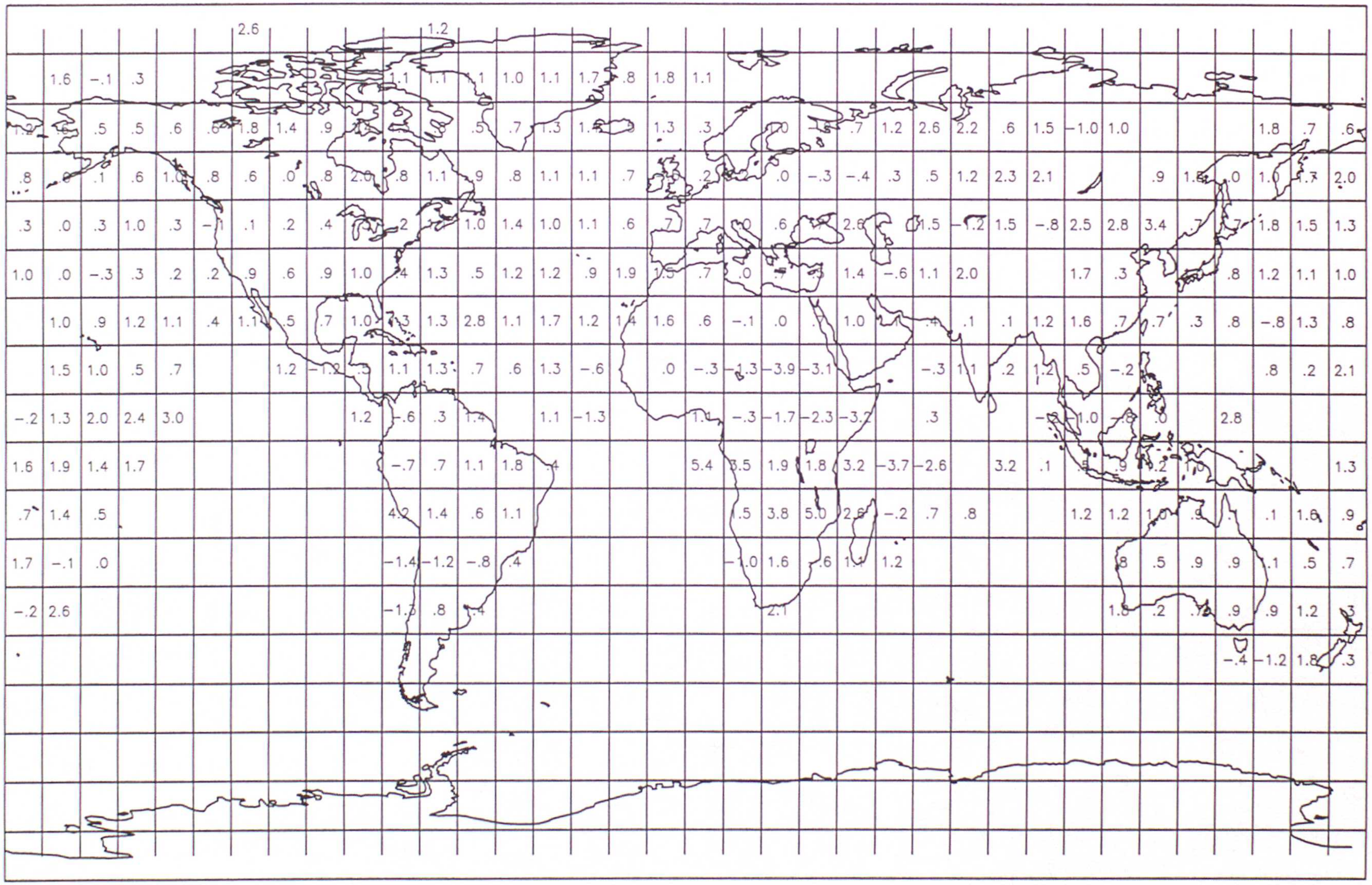
AUGUST 1998

OBSERVATIONS WITH O−B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



AIRCRAFT : MEAN O-B SPEEDS (M/S) BETWEEN 70 AND 500 HPA FIGURE 6
AUGUST 1998
OBSERVATIONS WITH O-B VECTOR DIFFERENCE > 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT


2.6 1.2
1.6 -.1 .3 1.1 1.1 1.1 1.0 1.1 1.7 .8 1.8 1.1
1.2 .6 .5 .5 .6 .6 1.8 1.4 .9 .5 .7 1.3 1.4 1.3 .3 1.0 .7 1.2 2.6 2.2 .6 1.5 -1.0 1.0 1.8 .7 .6
.8 .0 .1 .6 1.0 .8 .6 .0 .8 2.0 .8 1.1 .9 .8 1.1 1.1 .7 .2 .0 -.3 -.4 .3 .5 1.2 2.3 2.1 .9 1.8 .0 1.0 1.7 2.0
.3 .0 .3 1.0 .3 -.1 .1 .2 .4 .2 1.0 1.4 1.0 1.1 .6 .7 .7 .0 .6 2.6 1.5 -1.2 1.5 -.8 2.5 2.8 3.4 .7 .7 1.8 1.5 1.3
1.0 .0 -.3 .3 .2 .2 .9 .6 .9 1.0 .4 1.3 .5 1.2 1.2 .9 1.9 1.5 .7 .0 1.4 -.6 1.1 2.0 1.7 .3 .8 1.2 1.1 1.0
1.0 .9 1.2 1.1 .4 1.1 .5 .7 1.0 1.3 1.3 2.8 1.1 1.7 1.2 1.4 1.6 .6 -.1 .0 1.0 .1 .1 1.2 1.6 .7 .7 .3 .8 -.8 1.3 .8
1.5 1.0 .5 .7 1.2 -1.2 1.1 1.3 .7 .6 1.3 -.6 .0 -.3 -1.3 -3.9 -3.1 -.3 1.1 .2 1.2 .5 -.2 .8 .2 2.1
-.2 1.3 2.0 2.4 3.0 1.2 -.6 .3 1.4 1.1 -1.3 1.1 -.3 -1.7 -2.3 -3.2 .3 -1.0 .0 2.8
1.6 1.9 1.4 1.7 -.7 .7 1.1 1.8 5.4 3.5 1.9 1.8 3.2 -3.7 -2.6 3.2 .1 .9 .2 1.3
.7 1.4 .5 4.2 1.4 .6 1.1 .5 3.8 5.0 2.6 -.2 .7 .8 1.2 1.2 1.0 .1 1.6 .9
1.7 -.1 .0 -1.4 -1.2 -.8 .4 -1.0 1.6 .6 1.1 1.2 .8 .5 .9 .9 .1 .5 .7
-.2 2.6 -1.3 .8 2.1 1.3 .2 .7 .9 .9 1.2 .3
-.4 -1.2 1.8 .3

AIRCRAFT : RMS O–B VECTOR (M/S) BETWEEN 70 AND 500 HPA FIGURE 7
AUGUST 1998
OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

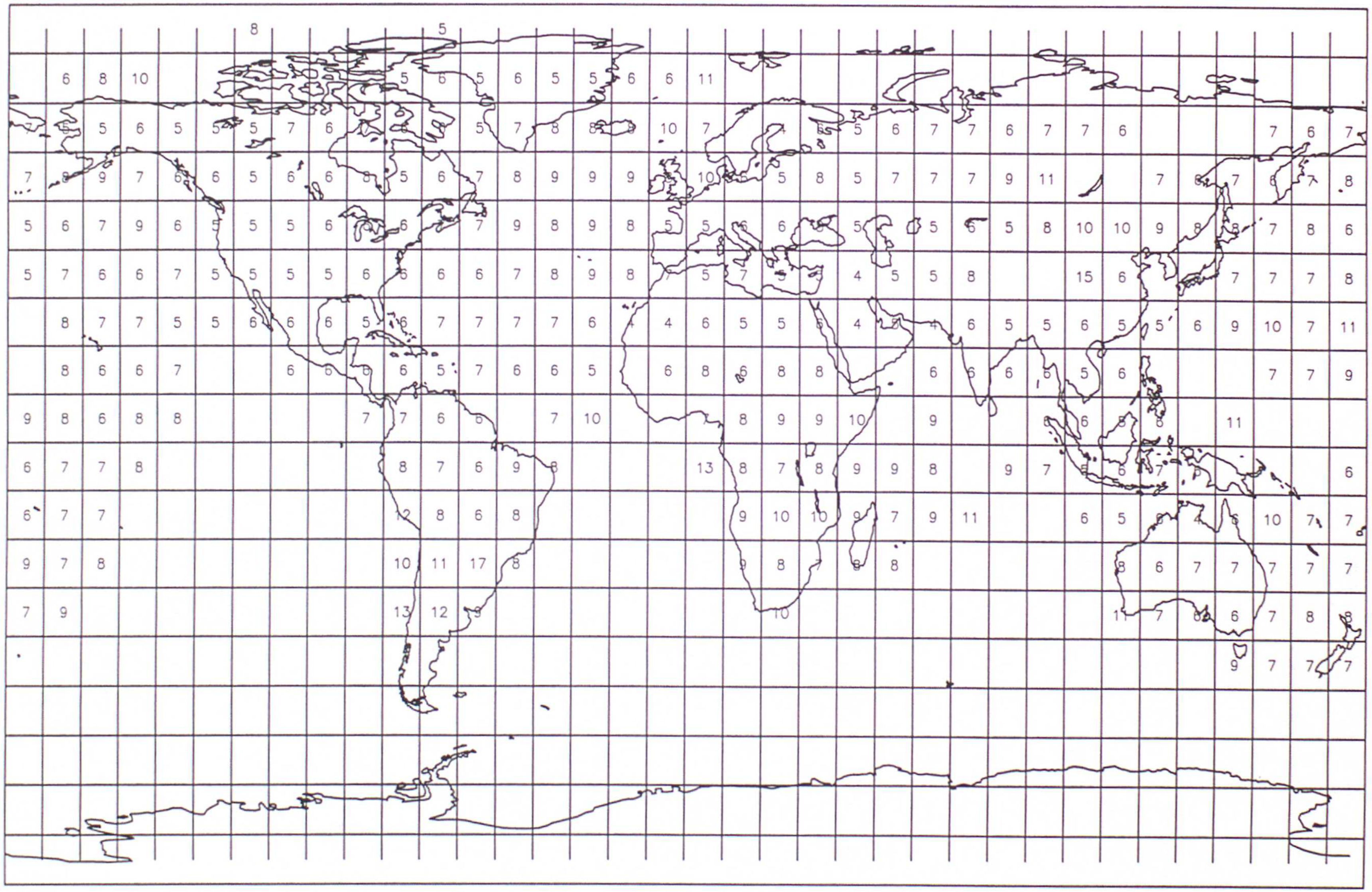


TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: August 1998

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 30.0 hPa
Element monitored		:GEOPOTENTIAL HEIGHT IN metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown duringperiod.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.1	
SELECTION CRITERIA	: ≥3 levels with ≥10 observations and ≥ 100 m weighted RMS.	

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
42027	00	Z	200	34/ 75	12	3	72.8	-125.9	145.5	7
42027	12	Z	150	34/ 75	11	1	137.2	-28.2	140.0	6
42101	12	Z	200	30/ 76	19	0	100.3	64.1	119.0	6
42182	00	Z	100	29/ 77	22	0	102.0	-60.1	118.4	4
42314	12	Z	200	27/ 95	18	0	77.4	50.6	92.5	7
42339	00	Z	100	26/ 73	12	0	122.3	9.4	122.6	7
42339	12	Z	150	26/ 73	15	0	106.3	66.2	125.2	7
42361	12	Z	100	26/ 78	10	1	135.6	4.0	135.6	7
42369	00	Z	200	27/ 81	16	0	98.3	-19.3	100.1	6
42369	12	Z	200	27/ 81	15	0	80.7	85.1	117.3	7
42410	00	Z	100	26/ 92	20	0	87.3	137.5	162.9	4
42492	00	Z	200	26/ 85	28	0	90.4	-17.9	92.2	6
42647	12	Z	100	23/ 73	11	1	72.0	157.1	172.8	7
42667	00	Z	100	23/ 77	13	0	109.1	21.8	111.2	4
42701	00	Z	100	23/ 85	23	0	122.9	-42.0	129.9	4
42701	12	Z	150	23/ 85	19	0	105.9	-47.9	116.2	5
42724	12	Z	200	24/ 91	22	0	69.6	34.6	77.8	5
42809	12	Z	200	23/ 88	26	2	64.0	76.2	99.5	7
42867	12	Z	100	21/ 79	21	0	129.8	74.3	149.5	5
43003	00	Z	200	19/ 73	25	3	93.0	55.6	108.3	7
43003	12	Z	100	19/ 73	10	3	60.7	184.9	194.6	7
43014	00	Z	150	20/ 75	7	9	58.4	-192.0	200.7	5
43014	12	Z	150	20/ 75	11	3	55.4	-155.2	164.8	4
43041	00	Z	100	19/ 82	19	0	100.2	124.0	159.4	7
43041	12	Z	150	19/ 82	19	0	73.1	78.8	107.5	7
43128	12	Z	150	17/ 78	16	0	112.1	49.6	122.6	5
43185	12	Z	100	16/ 81	27	0	133.4	61.6	147.0	5
43192	00	Z	100	15/ 74	17	0	117.4	-58.5	131.1	4
43279	00	Z	100	13/ 80	26	0	121.0	-47.5	129.9	4
43279	12	Z	150	13/ 80	26	0	82.9	39.2	91.7	4
43295	00	Z	150	13/ 78	19	0	119.5	8.9	119.8	5
43346	12	Z	150	11/ 80	27	0	83.1	91.7	123.7	5
43369	00	Z	100	8/ 73	20	1	133.4	-81.8	156.5	6
43369	12	Z	150	8/ 73	20	0	106.5	-12.3	107.2	5
43371	00	Z	150	8/ 77	28	0	80.6	56.9	98.7	4
43371	12	Z	150	8/ 77	26	0	87.6	122.5	150.6	6
53463	12	Z	250	41/ 112	26	0	51.1	63.4	81.4	4
53772	00	Z	150	38/ 113	31	0	46.1	104.9	114.6	6
58424	00	Z	100	31/ 117	28	0	37.7	124.0	129.6	4
58424	12	Z	100	31/ 117	29	0	29.3	147.1	150.0	4
84628	12	Z	850	-12/ -77	20	0	6.5	-81.8	82.0	8
89009	00	Z	1000	-90/ 0	3	18	44.8	33.3	55.8	5
89512	00	Z	1000	-71/ 12	6	4	9.5	90.7	91.2	9
89664	00	Z	200	-78/ 167	7	3	78.6	105.6	131.6	7
96163	00	Z	200	-1/ 100	9	1	119.9	70.9	139.3	7
96237	00	Z	150	-2/ 106	10	0	120.2	-15.5	121.2	4
97014	00	Z	150	2/ 125	17	1	110.1	-52.8	122.1	7

AVAILABILITY – TEMP – 500 HPA GEOPOTENTIAL – AUGUST 1998 FIGURE 8

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1138

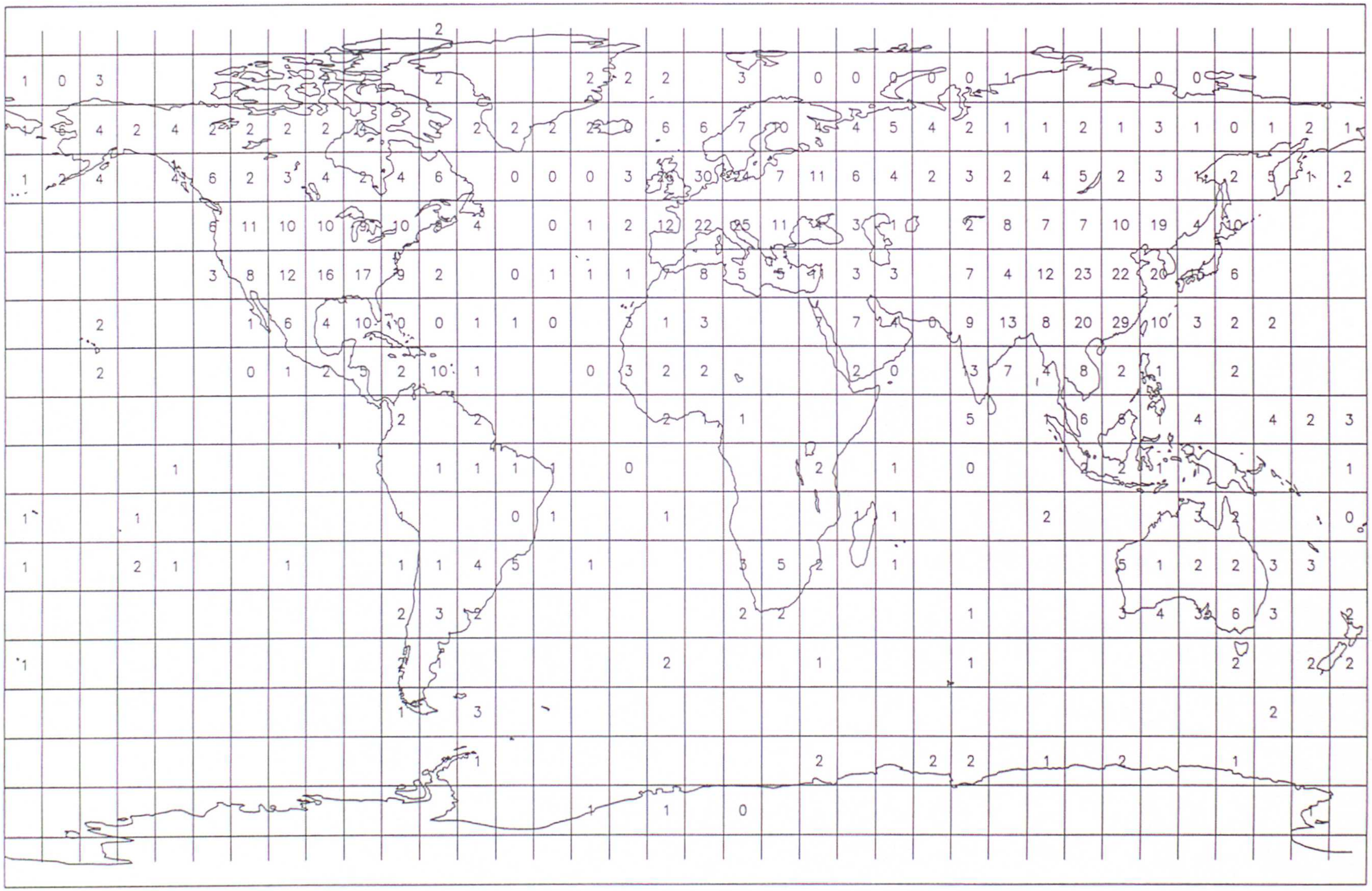

2
1 0 3 2 2 2 2 3 0 0 0 0 0 1 0 0
1 6 4 2 4 2 2 2 2 2 2 2 2 2 6 6 7 10 4 5 4 2 1 1 2 1 3 1 0 1 2 1
1 2 4 4 6 2 3 4 2 4 6 0 0 0 3 29 30 24 7 11 6 4 2 3 2 4 5 2 3 1 2 5 1 2
6 11 10 10 9 10 8 4 0 1 2 12 22 25 11 4 3 1 2 8 7 7 10 19 4 10
3 8 12 16 17 9 2 0 1 1 1 7 8 5 5 4 3 3 7 4 12 23 22 20 0 6
2 1 6 4 10 0 0 1 1 0 3 1 3 7 7 4 0 9 13 8 20 29 10 3 2 2
2 0 1 2 5 2 10 1 0 3 2 2 2 0 3 7 4 8 2 1 2
2 2 2 1 5 1 6 8 4 4 2 3
1 1 1 1 1 0 2 1 0 2 2 1 1
1 1 1 0 1 1 1 1 2 3 2 0
1 2 1 1 1 1 4 5 1 3 5 2 1 5 1 2 2 3 3
2 3 2 2 2 1 3 4 3 6 3 2
1 2 1 1 2 2 2
1 3 2
1 2 2 2 1 2 1
1 1 0

TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: August 1998

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 100.0 hPa

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored

:NUM OBS	:Number of observations available at level shown during period.
:NUM GROSS	:Number of gross errors at level shown during period.
:% REJ	:Percentage of observations rejected by quality control at level shown during period.
:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
:NUM LEVELS	:Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.2

SELECTION CRITERIA : $\geq$ 10 observations and $\geq$ 15 m s^{-1} RMS vector wind.

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

```
 WMO   OBS                                   NUM     NUM      %
IDENT TIME ELM   LEV     LAT/LONG  OBS    GROSS   REJ   UBIAS    VBIAS     RMS    LEVELS

40766   12    V   300      34/  47   11        0    18     7.2      3.2    19.0       1
43369   12    V   100       8/  73   19        0    15   -14.2      1.4    19.4       1
```

AVAILABILITY – TEMP/PILOT – 300 HPA WIND – AUGUST 1998 FIGURE 9

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1236

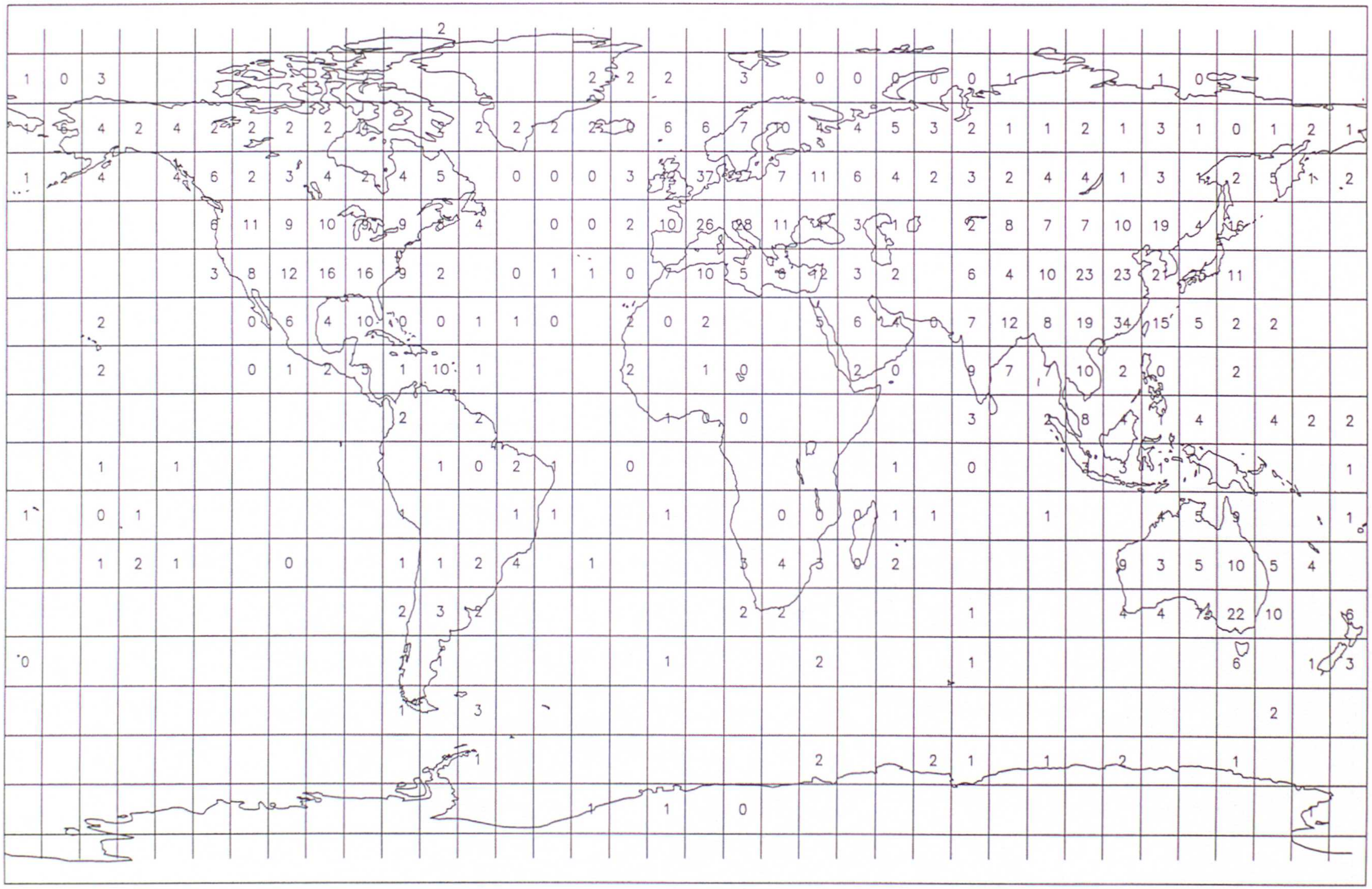

2
1 0 3 2 2 2 3 0 0 0 0 0 1 1 0
1 6 4 2 4 2 2 2 2 2 2 2 2 23 6 6 7 10 4 4 5 3 2 1 1 2 1 3 1 0 1 2 1
1 2 4 4 6 2 3 4 2 4 5 0 0 0 3 3 37 7 11 6 4 2 3 2 4 4 1 3 1 2 5 1 2
6 11 9 10 9 9 4 0 0 2 10 26 28 11 4 3 1 2 8 7 7 10 19 4 6
3 8 12 16 16 9 2 0 1 1 0 7 10 5 8 12 3 2 6 4 10 23 23 21 5 11
2 0 6 4 10 0 0 1 1 0 2 0 2 5 6 4 0 7 12 8 19 34 15 5 2 2
2 0 1 2 5 1 10 1 2 1 0 2 0 9 7 7 10 2 0 2
2 2 1 0 0 3 2 8 4 1 4 4 2 2
1 1 1 0 2 1 0 1 0 3 1 1
1 0 1 1 1 1 1 0 0 0 1 1 1 5 9 1 1
1 2 1 0 1 1 2 4 1 3 4 3 0 2 9 3 5 10 5 4
2 3 2 2 2 1 4 4 7 22 10 6
0 1 2 1 6 1 3
1 3 2
1 2 2 1 1 2 1
1 1 0 1

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: August 1998

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 500.0 - 150.0 hPa

Element monitored :WIND DIRECTION in degrees

Parameters monitored

:NUM OBS :Average number of observations at all levels.

:BIAS :Mean difference of observations from background values from all levels.

:MAX SPREAD :(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels

:SD :SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS ≥ 5, and
ABSOLUTE BIAS $\geq 10^{\circ}$, with
SD $< 30^{\circ}$, and
MAX SPREAD $< 10^{\circ}$

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
DBLK	12	DD	73/ 132	16	-10.1	7.1	13.7
42339	00	DD	26/ 73	9	12.3	9.8	27.5
43369	12	DD	8/ 73	15	11.9	7.1	17.7
44288	12	DD	46/ 103	13	-14.1	9.1	20.5
47909	12	DD	28/ 130	15	10.3	9.1	15.7
52889	12	DD	36/ 104	26	-10.0	5.7	16.1
53915	00	DD	36/ 107	28	-10.9	6.0	14.3
56146	12	DD	32/ 100	15	-11.5	8.8	20.3
57127	00	DD	33/ 107	25	-10.6	5.0	19.1
57516	00	DD	30/ 106	19	-12.4	8.2	26.4
57516	12	DD	30/ 106	18	-11.2	4.8	29.6
62337	00	DD	31/ 34	16	-22.5	4.7	19.2
62337	12	DD	31/ 34	14	-17.6	5.8	17.7
78866	12	DD	18/ -63	18	-11.6	4.8	23.2
91217	00	DD	14/ 145	17	-12.1	10.0	25.7
91366	00	DD	9/ 168	19	10.4	7.4	22.4

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: BRACKNELL

MONTH: August 1998

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from GOES, METEOSAT, GMS, INSAT.

Standard of comparison :Background field from Bracknell global model.

Selection Criteria :number of observations > 10.

Data Extracted :Layer 701 - 1000 hPa
401 - 700 hPa
101 - 400 hPa

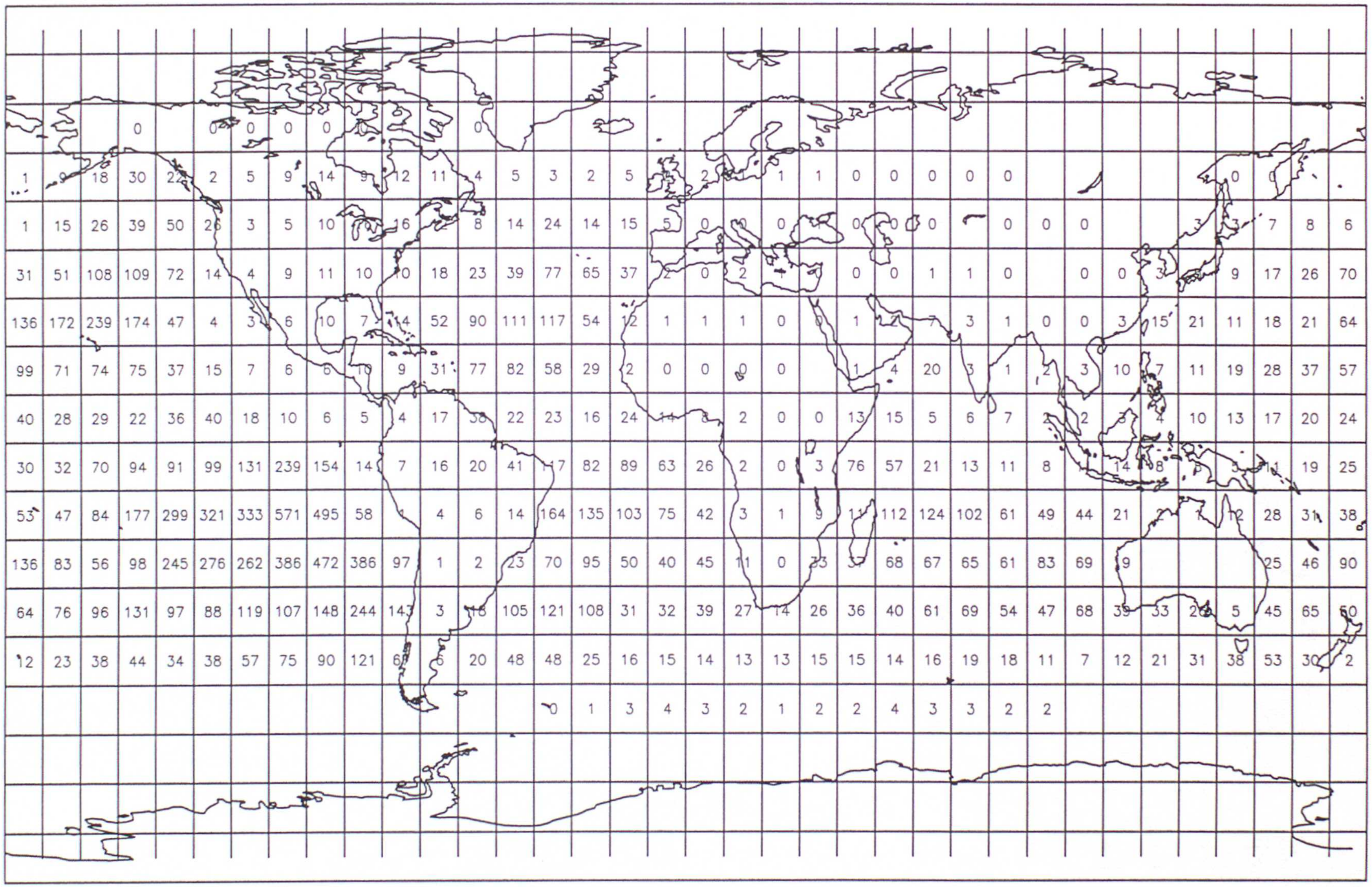
:Mean wind

:Mean observation minus background vector wind differences

:Mean observation minus background speed differences

:RMS of observation minus background vector differences

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
AUGUST 1998


0 0 0 0 0 0 0
1 9 18 30 22 2 5 9 14 9 12 11 4 5 3 2 5 2 1 1 0 0 0 0 0 0 0
1 15 26 39 50 26 3 5 10 10 16 8 14 24 14 15 5 0 0 0 0 0 0 0 0 0 3 3 7 8 6
31 51 108 109 72 14 4 9 11 10 10 18 23 39 77 65 37 2 0 2 1 0 0 0 1 1 0 0 0 3 9 17 26 70
136 172 239 174 47 4 3 6 10 7 14 52 90 111 117 54 12 1 1 1 0 0 1 2 7 3 1 0 0 3 15 21 11 18 21 64
99 71 74 75 37 15 7 6 6 10 9 31 77 82 58 29 2 0 0 0 0 1 4 20 3 1 2 3 10 7 11 19 28 37 57
40 28 29 22 36 40 18 10 6 5 4 17 38 22 23 16 24 14 8 2 0 0 13 15 5 6 7 2 2 3 4 10 13 17 20 24
30 32 70 94 91 99 131 239 154 14 7 16 20 41 117 82 89 63 26 2 0 3 76 57 21 13 11 8 14 8 3 3 11 19 25
53 47 84 177 299 321 333 571 495 58 4 6 14 164 135 103 75 42 3 1 9 11 112 124 102 61 49 44 21 2 1 12 28 31 38
136 83 56 98 245 276 262 386 472 386 97 1 2 23 70 95 50 40 45 11 0 33 37 68 67 65 61 83 69 9 25 46 90
64 76 96 131 97 88 119 107 148 244 143 3 18 105 121 108 31 32 39 27 14 26 36 40 61 69 54 47 68 39 33 26 5 45 65 50
12 23 38 44 34 38 57 75 90 121 61 6 20 48 48 25 16 15 14 13 13 15 15 14 16 19 18 11 7 12 21 31 38 53 30 2
0 1 3 4 3 2 1 2 2 4 3 3 2 2

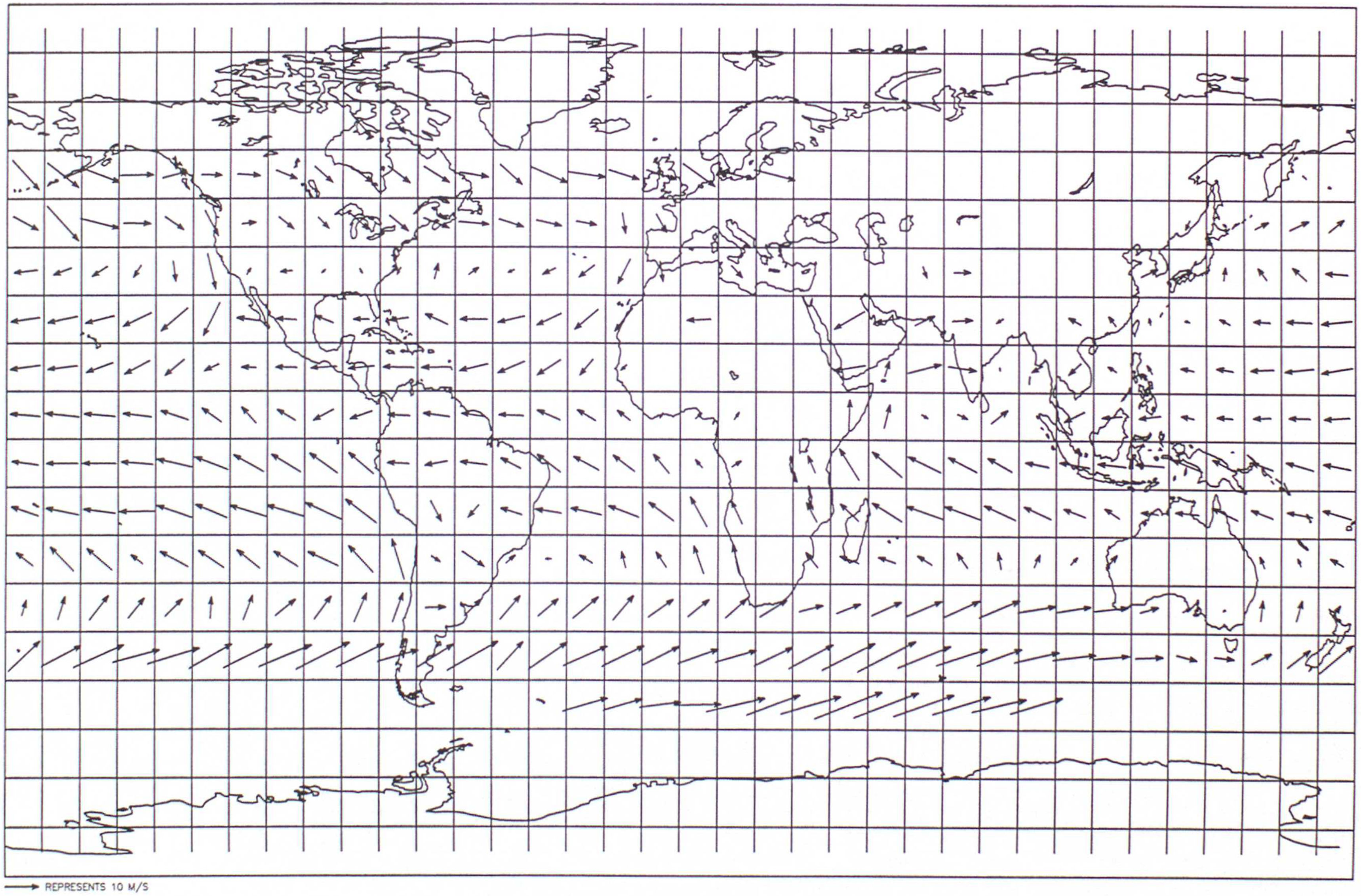
SATOB VECTOR MEAN WINDS BETWEEN 701–1000 HPA

AUGUST 1998

ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

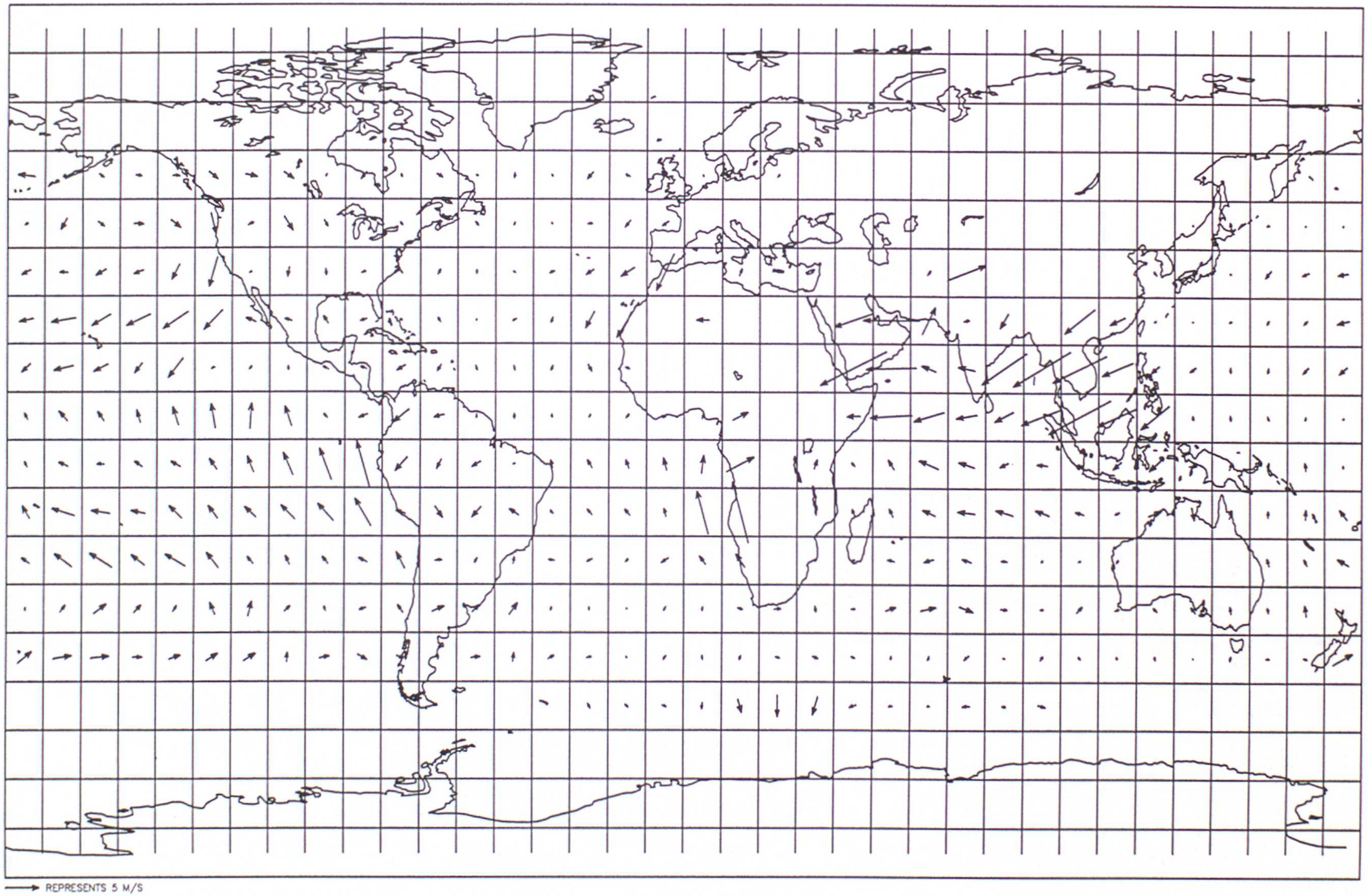
FIGURE 11


REPRESENTS 10 M/S

SATOB O−B VECTOR WIND DIFFERENCES BETWEEN 701−1000 HPA

FIGURE 12

AUGUST 1998
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

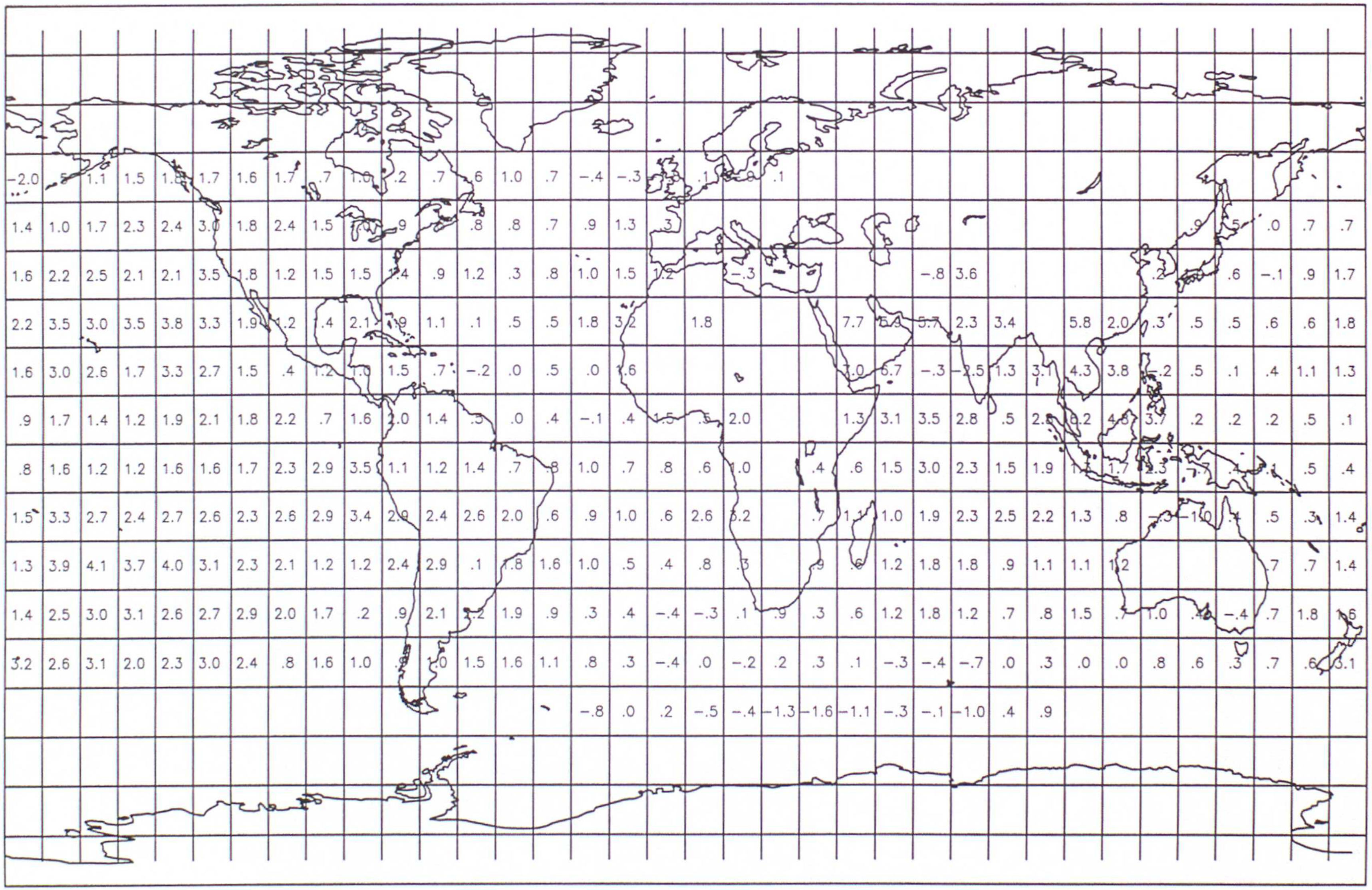


SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 13

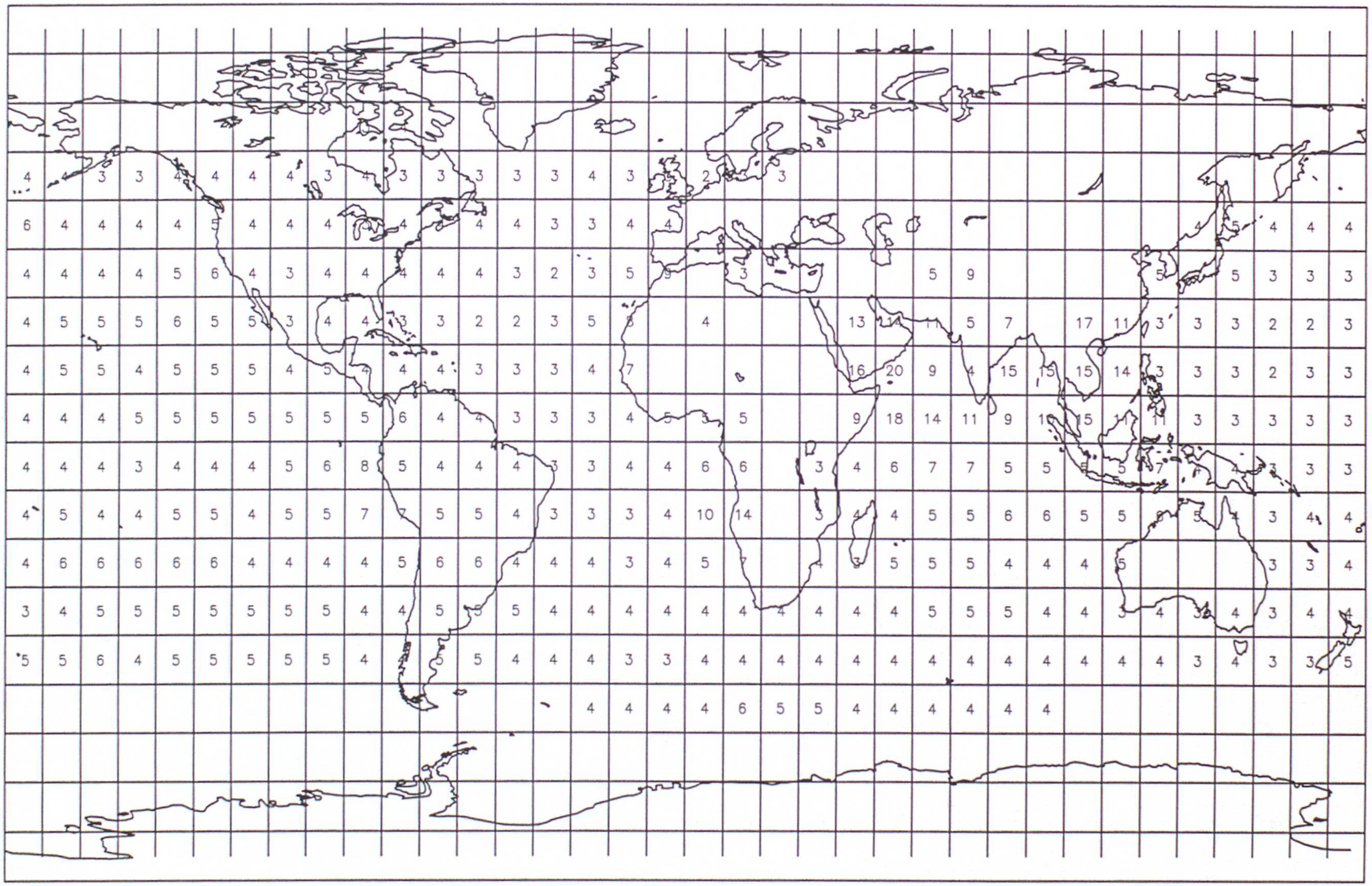
AUGUST 1998

USING ALL OBSERVATIONS

VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-2.0 .5 1.1 1.5 1.8 1.7 1.6 1.7 .7 1.0 .2 .7 .6 1.0 .7 -.4 -.3 .1 .8 .1
1.4 1.0 1.7 2.3 2.4 3.0 1.8 2.4 1.5 1.0 .9 .8 .8 .7 .9 1.3 .3 .9 .5 .0 .7 .7
1.6 2.2 2.5 2.1 2.1 3.5 1.8 1.2 1.5 1.5 1.4 .9 1.2 .3 .8 1.0 1.5 1.2 -.3 -.8 3.6 .2 .6 -.1 .9 1.7
2.2 3.5 3.0 3.5 3.8 3.3 1.9 1.2 1.4 2.1 1.9 1.1 .1 .5 .5 1.8 3.2 1.8 7.7 5.4 5.7 2.3 3.4 5.8 2.0 .3 .5 .5 .6 .6 1.8
1.6 3.0 2.6 1.7 3.3 2.7 1.5 .4 1.2 1.0 1.5 .7 -.2 .0 .5 .0 1.6 7.0 6.7 -.3 -2.5 1.3 3.1 4.3 3.8 -.2 .5 .1 .4 1.1 1.3
.9 1.7 1.4 1.2 1.9 2.1 1.8 2.2 .7 1.6 2.0 1.4 .5 .0 .4 -.1 .4 1.5 .5 2.0 1.3 3.1 3.5 2.8 .5 2.8 6.2 4.8 3.7 .2 .2 .2 .5 .1
.8 1.6 1.2 1.2 1.6 1.6 1.7 2.3 2.9 3.5 1.1 1.2 1.4 .7 .8 1.0 .7 .8 .6 1.0 .4 .6 1.5 3.0 2.3 1.5 1.9 1.7 2.3 -.7 .4 .1 .5 .4
1.5 3.3 2.7 2.4 2.7 2.6 2.3 2.6 2.9 3.4 2.9 2.4 2.6 2.0 .6 .9 1.0 .6 2.6 3.2 .7 1.1 1.0 1.9 2.3 2.5 2.2 1.3 .8 -.3 -1.0 .4 .5 .3 1.4
1.3 3.9 4.1 3.7 4.0 3.1 2.3 2.1 1.2 1.2 2.4 2.9 .1 1.8 1.6 1.0 .5 .4 .8 .3 .9 .6 1.2 1.8 1.8 .9 1.1 1.1 1.2 .7 .7 1.4
1.4 2.5 3.0 3.1 2.6 2.7 2.9 2.0 1.7 .2 .9 2.1 2.2 1.9 .9 .3 .4 -.4 -.3 .1 .9 .3 .6 1.2 1.8 1.2 .7 .8 1.5 .7 1.0 .4 -.4 .7 1.8 1.6
3.2 2.6 3.1 2.0 2.3 3.0 2.4 .8 1.6 1.0 .9 1.0 1.5 1.6 1.1 .8 .3 -.4 .0 -.2 .2 .3 .1 -.3 -.4 -.7 .0 .3 .0 .0 .8 .6 .3 .7 .6 3.1
-.8 .0 .2 -.5 -.4 -1.3 -1.6 -1.1 -.3 -.1 -1.0 .4 .9

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14
AUGUST 1998
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT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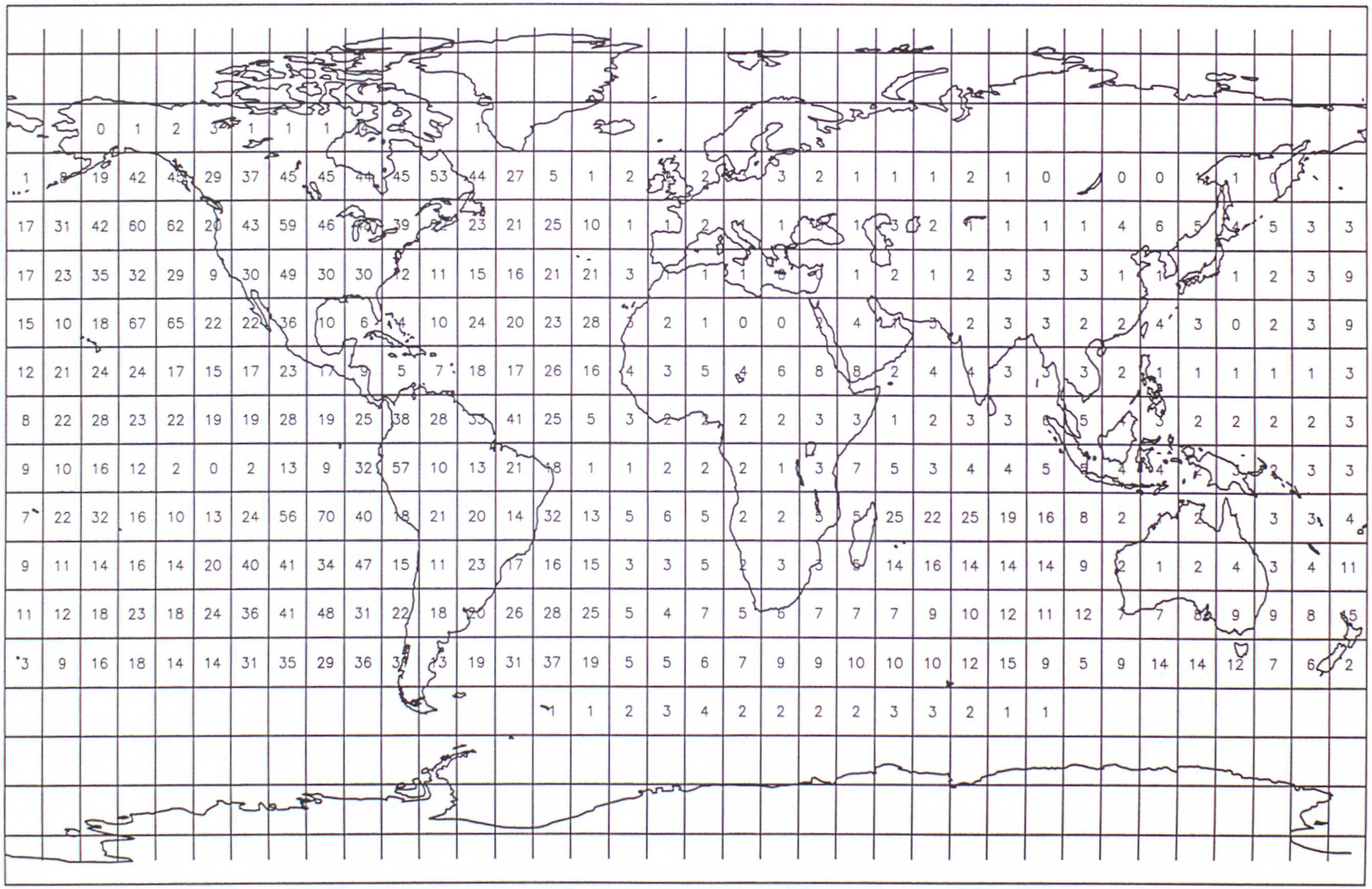
6 4 4 4 4 5 4 4 4 4 4 4 4 4 3 3 4 4 4 5 4 4 4
4 4 4 4 5 6 4 3 4 4 4 4 4 3 2 3 5 9 3 5 9 5 5 3 3 3
4 5 5 5 6 5 5 3 4 4 3 3 2 2 3 5 8 4 13 14 11 5 7 17 11 3 3 3 2 2 3
4 5 5 4 5 5 5 4 5 4 4 4 3 3 3 4 7 16 20 9 4 15 15 15 14 3 3 3 2 3 3
4 4 4 5 5 5 5 5 5 5 6 4 4 3 3 3 4 5 5 5 9 18 14 11 9 10 15 11 11 3 3 3 3 3
4 4 4 3 4 4 4 5 6 8 5 4 4 4 3 3 4 4 6 6 3 4 6 7 7 5 5 5 5 7 4 4 3 3 3
4 5 4 4 5 5 4 5 5 7 7 5 5 4 3 3 3 4 10 14 3 4 4 5 5 6 6 5 5 6 5 4 3 4 4
4 6 6 6 6 6 4 4 4 4 5 6 6 4 4 4 3 4 5 7 4 3 5 5 5 4 4 4 5 3 3 4
3 4 5 5 5 5 5 5 5 4 4 5 5 5 4 4 4 4 4 4 4 4 4 4 5 5 5 4 4 3 4 3 4 3 4 4
5 5 6 4 5 5 5 5 5 4 4 5 5 4 4 4 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 3 4 3 3 5
4 4 4 4 6 5 5 4 4 4 4 4 4

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
AUGUST 1998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1 8 19 42 45 29 37 45 45 44 45 53 44 27 5 1 2 2 2 3 2 1 1 1 2 1 0 0 0 1 1 0
17 31 42 60 62 20 43 59 46 46 39 22 23 21 25 10 1 1 2 1 1 0 1 3 2 1 1 1 1 4 6 5 4 5 3 3
17 23 35 32 29 9 30 49 30 30 12 11 15 16 21 21 3 1 1 1 0 0 1 2 1 2 3 3 3 1 1 1 2 3 9
15 10 18 67 65 22 22 36 10 6 4 10 24 20 23 28 3 2 1 0 0 2 4 1 3 2 3 3 2 2 4 3 0 2 3 9
12 21 24 24 17 15 17 23 17 9 5 7 18 17 26 16 4 3 5 4 6 8 8 2 4 4 3 3 3 2 1 1 1 1 1 3
8 22 28 23 22 19 19 28 19 25 38 28 33 41 25 5 3 2 2 2 2 3 3 1 2 3 3 6 5 4 3 2 2 2 2 3
9 10 16 12 2 0 2 13 9 32 57 10 13 21 18 1 1 2 2 2 1 3 7 5 3 4 4 5 5 4 4 2 3 2 3 3
7 22 32 16 10 13 24 56 70 40 18 21 20 14 32 13 5 6 5 2 2 5 5 25 22 25 19 16 8 2 1 2 3 3 4
9 11 14 16 14 20 40 41 34 47 15 11 23 17 16 15 3 3 5 2 3 3 6 14 16 14 14 14 9 2 1 2 4 3 4 11
11 12 18 23 18 24 36 41 48 31 22 18 20 26 28 25 5 4 7 5 6 7 7 7 9 10 12 11 12 7 7 8 9 9 8 15
3 9 16 18 14 14 31 35 29 36 37 13 19 31 37 19 5 5 6 7 9 9 10 10 10 12 15 9 5 9 14 14 12 7 6 2
1 1 2 3 4 2 2 2 2 3 3 2 1 1

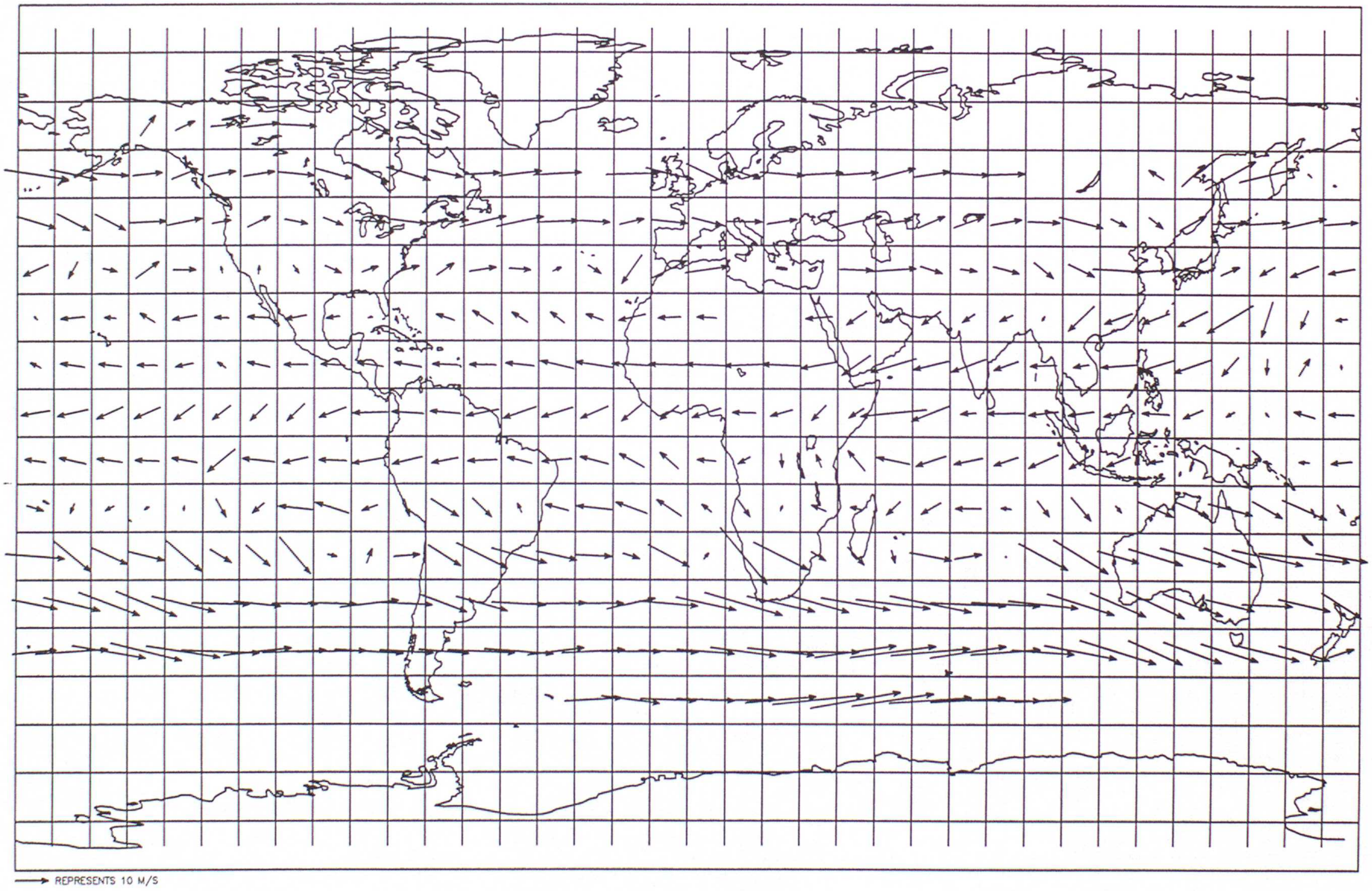
SATOB VECTOR MEAN WINDS BETWEEN 401–700 HPA

FIGURE 16

AUGUST 1998

ALL OBSERVATIONS

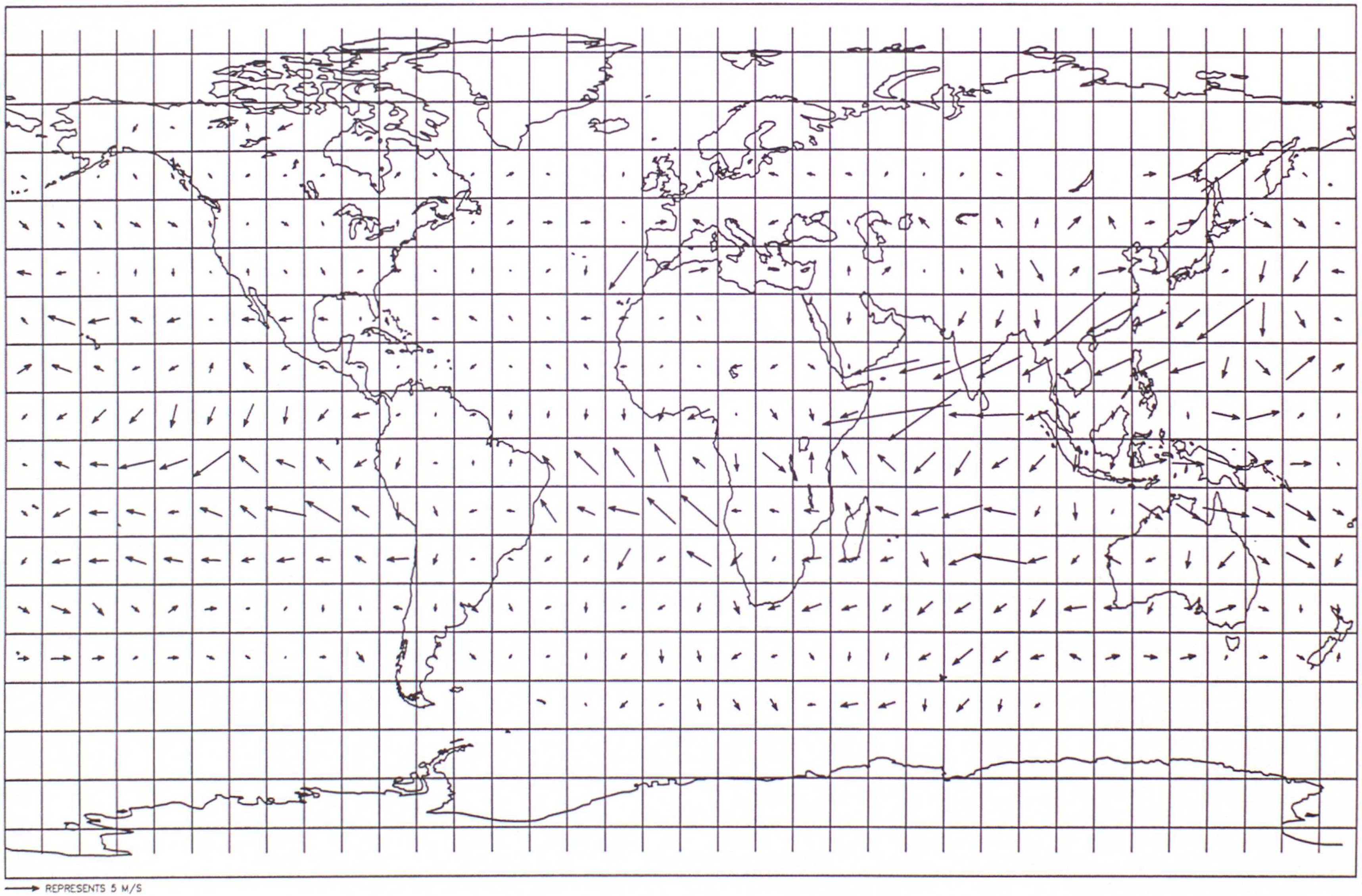
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 10 M/S

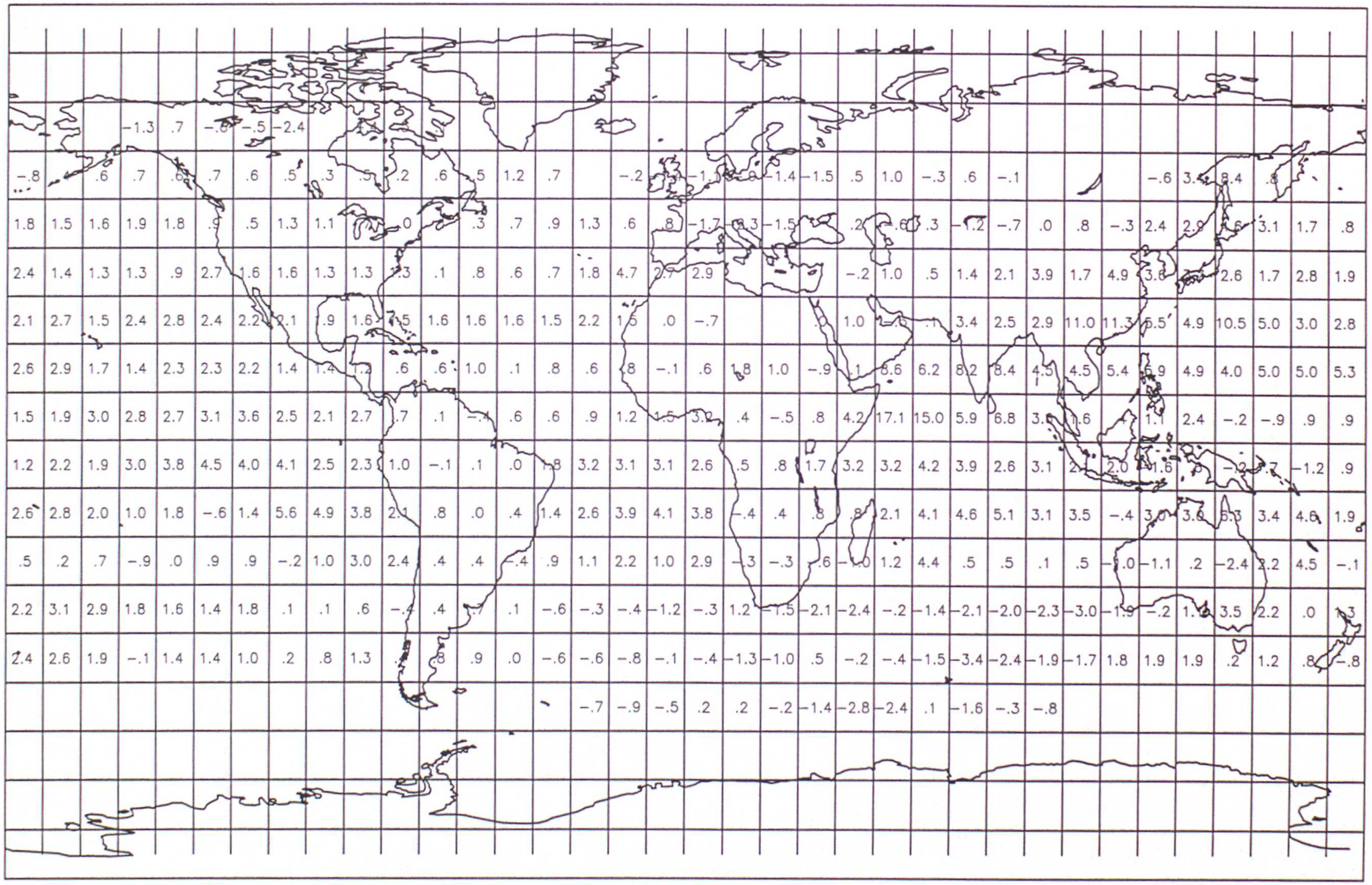
SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 401–700 HPA

FIGURE 17

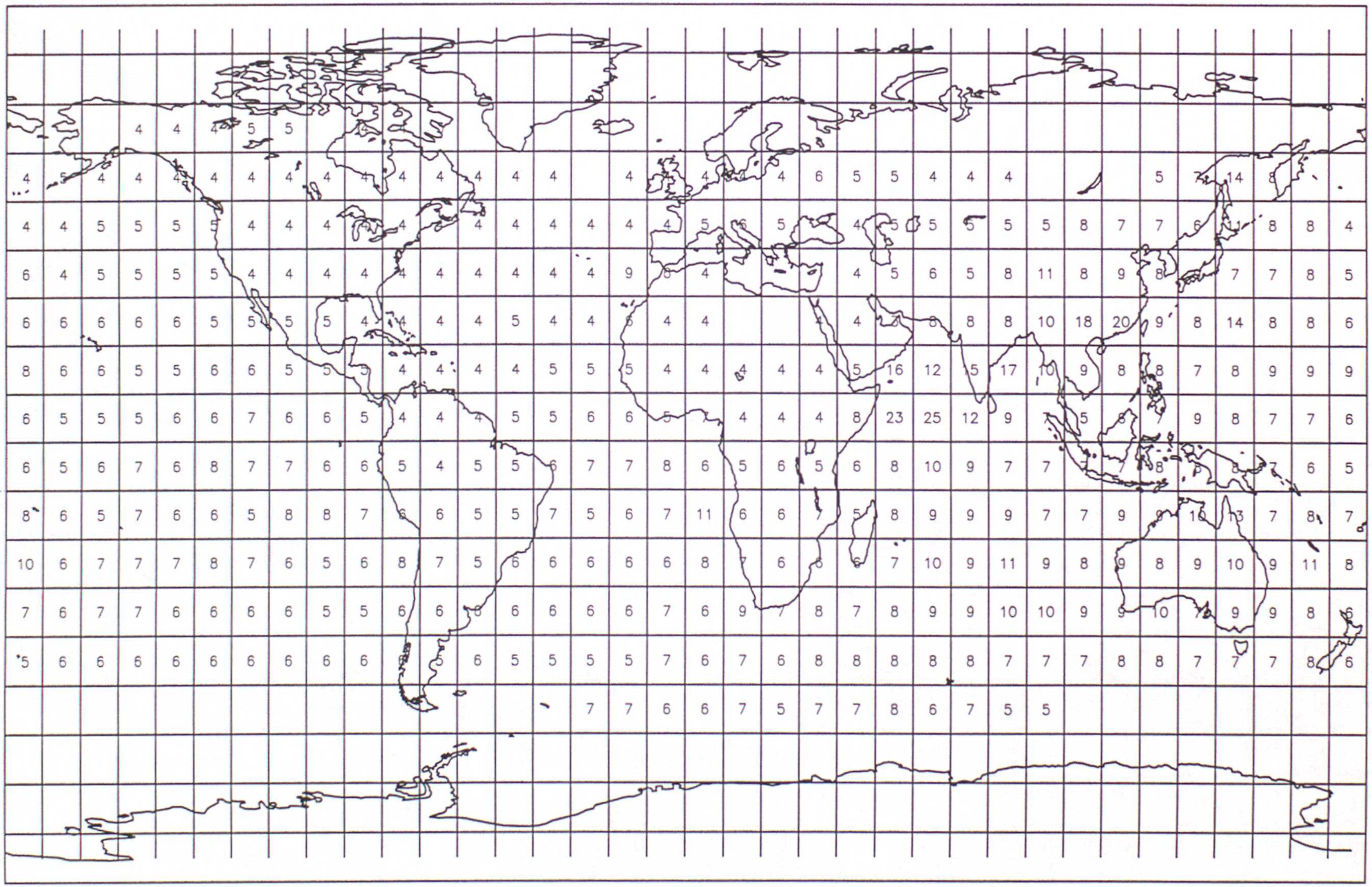
AUGUST 1998
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT



SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18
AUGUST 1998
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-1.3 .7 -.6 -.5 -2.4
-.8 .6 .7 .6 .7 .6 .5 .3 .5 .2 .6 .5 1.2 .7 -.2 -1.1 -1.4 -1.5 .5 1.0 -.3 .6 -.1 -.6 3.4 8.4 .8
1.8 1.5 1.6 1.9 1.8 .9 .5 1.3 1.1 .0 .3 .7 .9 1.3 .6 .8 -1.7 -1.5 .2 -.6 .3 -1.2 -.7 .0 .8 -.3 2.4 2.9 1.6 3.1 1.7 .8
2.4 1.4 1.3 1.3 .9 2.7 1.6 1.6 1.3 1.3 1.3 .1 .8 .6 .7 1.8 4.7 2.7 2.9 -.2 1.0 .5 1.4 2.1 3.9 1.7 4.9 3.6 2.6 1.7 2.8 1.9
2.1 2.7 1.5 2.4 2.8 2.4 2.2 2.1 1.9 1.6 1.5 1.6 1.6 1.6 1.5 2.2 1.5 .0 -.7 1.0 .1 3.4 2.5 2.9 11.0 11.3 5.5 4.9 10.5 5.0 3.0 2.8
2.6 2.9 1.7 1.4 2.3 2.3 2.2 1.4 1.4 1.2 .6 .6 1.0 .1 .8 .6 .8 -.1 .6 1.8 1.0 -.9 .1 8.6 6.2 8.2 8.4 4.5 4.5 5.4 5.9 4.9 4.0 5.0 5.0 5.3
1.5 1.9 3.0 2.8 2.7 3.1 3.6 2.5 2.1 2.7 .7 .1 -.4 .6 .6 .9 1.2 1.5 3.2 .4 -.5 .8 4.2 17.1 15.0 5.9 6.8 3.6 1.6 1.1 2.4 -.2 -.9 .9 .9
1.2 2.2 1.9 3.0 3.8 4.5 4.0 4.1 2.5 2.3 1.0 -.1 .1 .0 1.8 3.2 3.1 3.1 2.6 .5 .8 1.7 3.2 3.2 4.2 3.9 2.6 3.1 2.1 2.0 1.6 -.2 .7 -1.2 .9
2.6 2.8 2.0 1.0 1.8 -.6 1.4 5.6 4.9 3.8 2.1 .8 .0 .4 1.4 2.6 3.9 4.1 3.8 -.4 .4 .8 .8 2.1 4.1 4.6 5.1 3.1 3.5 -.4 3.0 3.6 6.3 3.4 4.6 1.9
.5 .2 .7 -.9 .0 .9 .9 -.2 1.0 3.0 2.4 .4 .4 -.4 .9 1.1 2.2 1.0 2.9 -.3 -.3 .6 -1.0 1.2 4.4 .5 .5 .1 .5 -1.0 -1.1 .2 -2.4 2.2 4.5 -.1
2.2 3.1 2.9 1.8 1.6 1.4 1.8 .1 .1 .6 -.4 .4 .7 .1 -.6 -.3 -.4 -1.2 -.3 1.2 -1.5 -2.1 -2.4 -.2 -1.4 -2.1 -2.0 -2.3 -3.0 -1.9 -.2 1.6 3.5 2.2 .0 1.3
2.4 2.6 1.9 -.1 1.4 1.4 1.0 .2 .8 1.3 .4 .8 .9 .0 -.6 -.6 -.8 -.1 -.4 -1.3 -1.0 .5 -.2 -.4 -1.5 -3.4 -2.4 -1.9 -1.7 1.8 1.9 1.9 .2 1.2 .8 -.8
-.7 -.9 -.5 .2 .2 -.2 -1.4 -2.8 -2.4 .1 -1.6 -.3 -.8

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 19
AUGUST 1998
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT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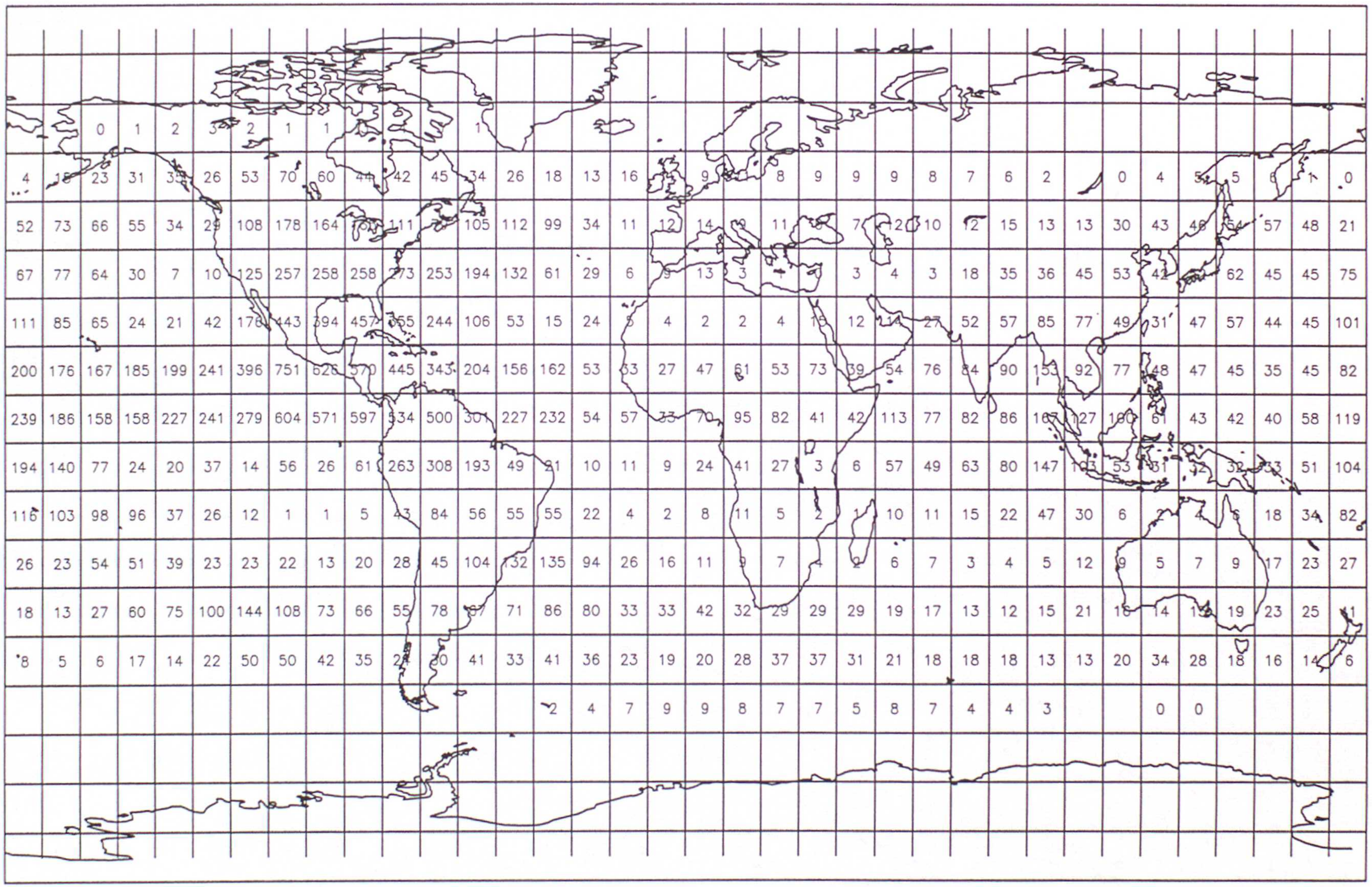
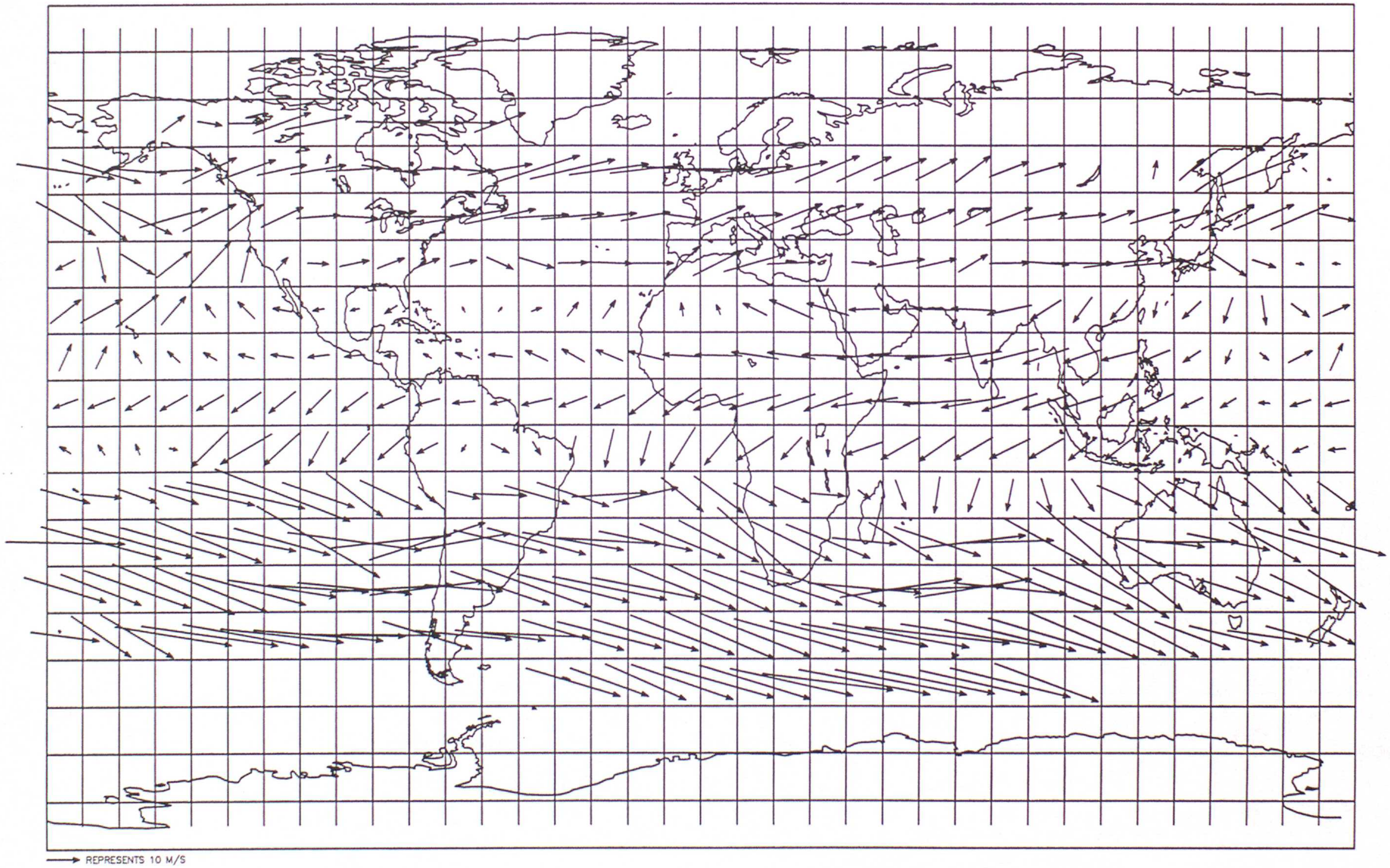
4 4 5 5 5 5 4 4 4 4 4 4 4 4 4 4 4 5 6 5 4 5 5 5 5 5 8 7 7 6 11 8 8 4
6 4 5 5 5 5 4 4 4 4 4 4 4 4 4 4 9 6 4 4 5 6 5 8 11 8 9 8 7 7 8 5
6 6 6 6 6 5 5 5 5 4 4 4 4 5 4 4 6 4 4 4 4 6 8 8 8 10 18 20 9 8 14 8 8 6
8 6 6 5 5 6 6 5 5 5 4 4 4 4 5 5 5 4 4 4 4 4 5 16 12 15 17 10 9 8 8 7 8 9 9 9
6 5 5 5 6 6 7 6 6 5 4 4 4 5 5 6 6 5 7 4 4 4 8 23 25 12 9 7 5 6 7 9 8 7 7 6
6 5 6 7 6 8 7 7 6 6 5 4 5 5 6 7 7 8 6 5 6 5 6 8 10 9 7 7 7 7 8 8 8 7 6 5
8 6 5 7 6 6 5 8 8 7 6 6 5 5 7 5 6 7 11 6 6 7 5 8 9 9 9 7 7 9 9 10 13 7 8 7
10 6 7 7 7 8 7 6 5 6 8 7 5 6 6 6 6 6 8 7 6 6 6 7 10 9 11 9 8 9 8 9 10 9 11 8
7 6 7 7 6 6 6 6 5 5 6 6 6 6 6 6 6 7 6 9 7 8 7 8 9 9 10 10 9 9 10 7 9 9 8 6
5 6 6 6 6 6 6 6 6 6 6 5 6 5 5 5 5 7 6 7 6 8 8 8 8 8 7 7 7 8 8 7 7 7 8 6
7 7 6 6 7 5 7 7 8 6 7 5 5

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
AUGUST 1998


0 1 2 3 2 1 1 1
4 18 23 31 33 26 53 70 60 44 42 45 34 26 18 13 16 9 8 9 9 9 8 7 6 2 0 4 5 5 6 1 0
52 73 66 55 34 29 108 178 164 111 105 112 99 34 11 12 14 11 7 12 10 12 15 13 13 30 43 46 54 57 48 21
67 77 64 30 7 10 125 257 258 258 273 253 194 132 61 29 6 9 13 3 3 4 3 18 35 36 45 53 42 62 45 45 75
111 85 65 24 21 42 176 443 394 457 355 244 106 53 15 24 5 4 2 2 4 15 12 14 27 52 57 85 77 49 31 47 57 44 45 101
200 176 167 185 199 241 396 751 626 570 445 343 204 156 162 53 63 27 47 61 53 73 39 54 76 84 90 153 92 77 48 47 45 35 45 82
239 186 158 158 227 241 279 604 571 597 534 500 301 227 232 54 57 33 70 95 82 41 42 113 77 82 86 167 127 160 61 43 42 40 58 119
194 140 77 24 20 37 14 56 26 61 263 308 193 49 21 10 11 9 24 41 27 3 6 57 49 63 80 147 103 53 31 32 32 33 51 104
116 103 98 96 37 26 12 1 1 5 43 84 56 55 55 22 4 2 8 11 5 2 1 10 11 15 22 47 30 6 2 4 6 18 34 82
26 23 54 51 39 23 23 22 13 20 28 45 104 132 135 94 26 16 11 9 7 4 2 6 7 3 4 5 12 9 5 7 9 17 23 27
18 13 27 60 75 100 144 108 73 66 55 78 87 71 86 80 33 33 42 32 29 29 29 19 17 13 12 15 21 16 14 13 19 23 25 11
8 5 6 17 14 22 50 50 42 35 24 30 41 33 41 36 23 19 20 28 37 37 31 21 18 18 18 13 13 20 34 28 18 16 14 6
2 4 7 9 9 8 7 7 5 8 7 4 4 3 0 0

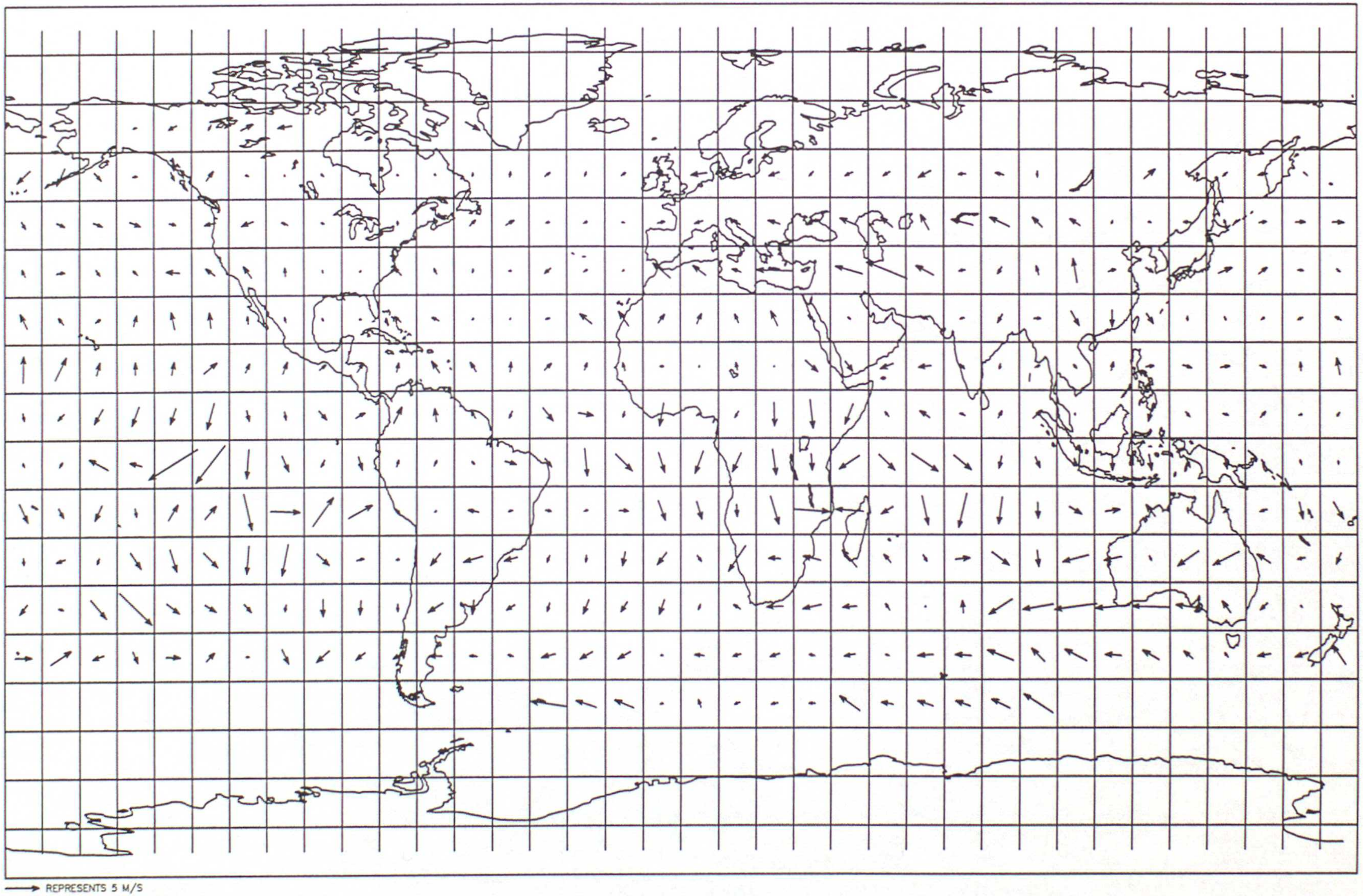
SATOB VECTOR MEAN WINDS BETWEEN 101–400 HPA
AUGUST 1998
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 21

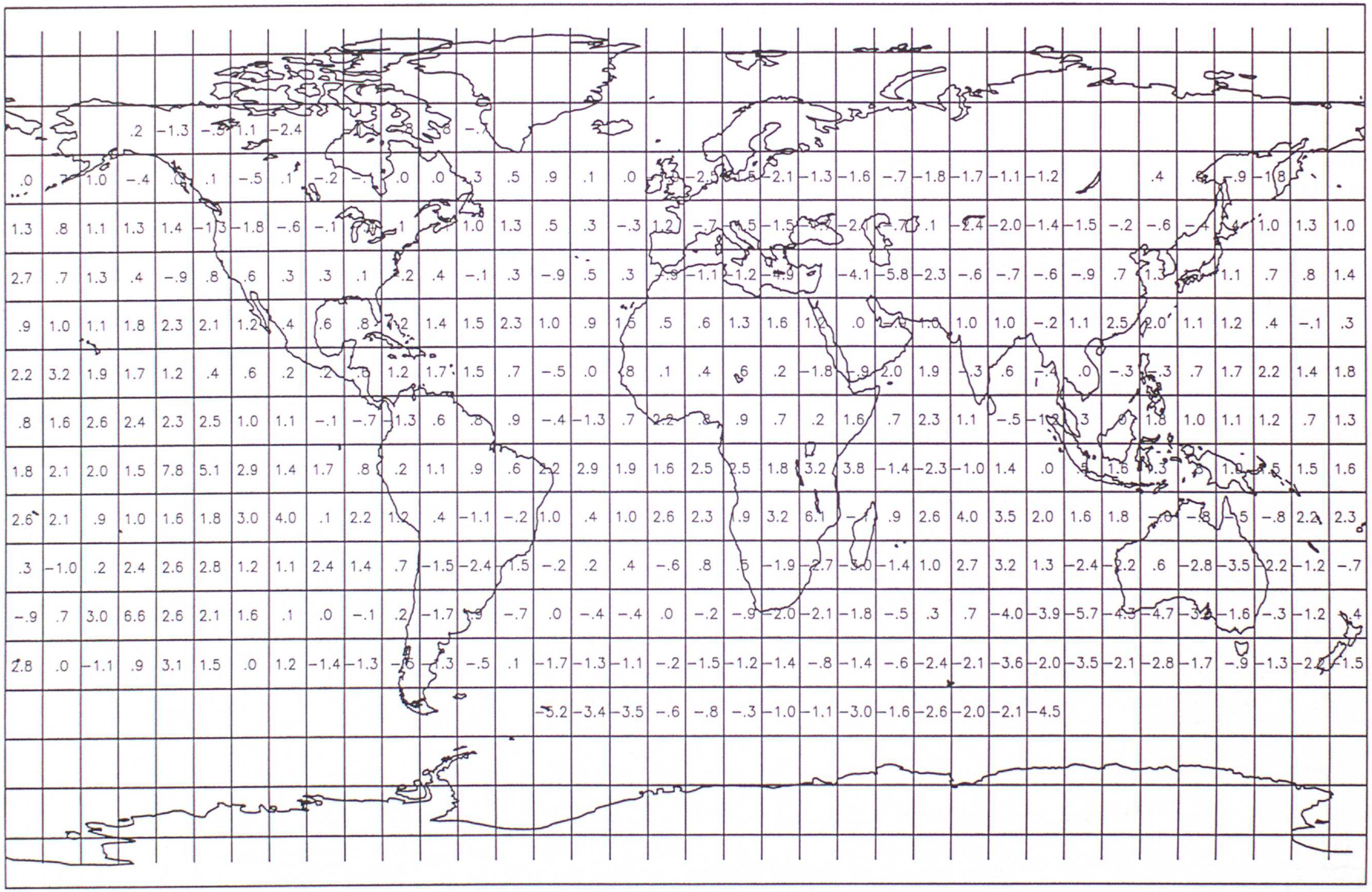

REPRESENTS 10 M/S

SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 101–400 HPA
AUGUST 1998
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

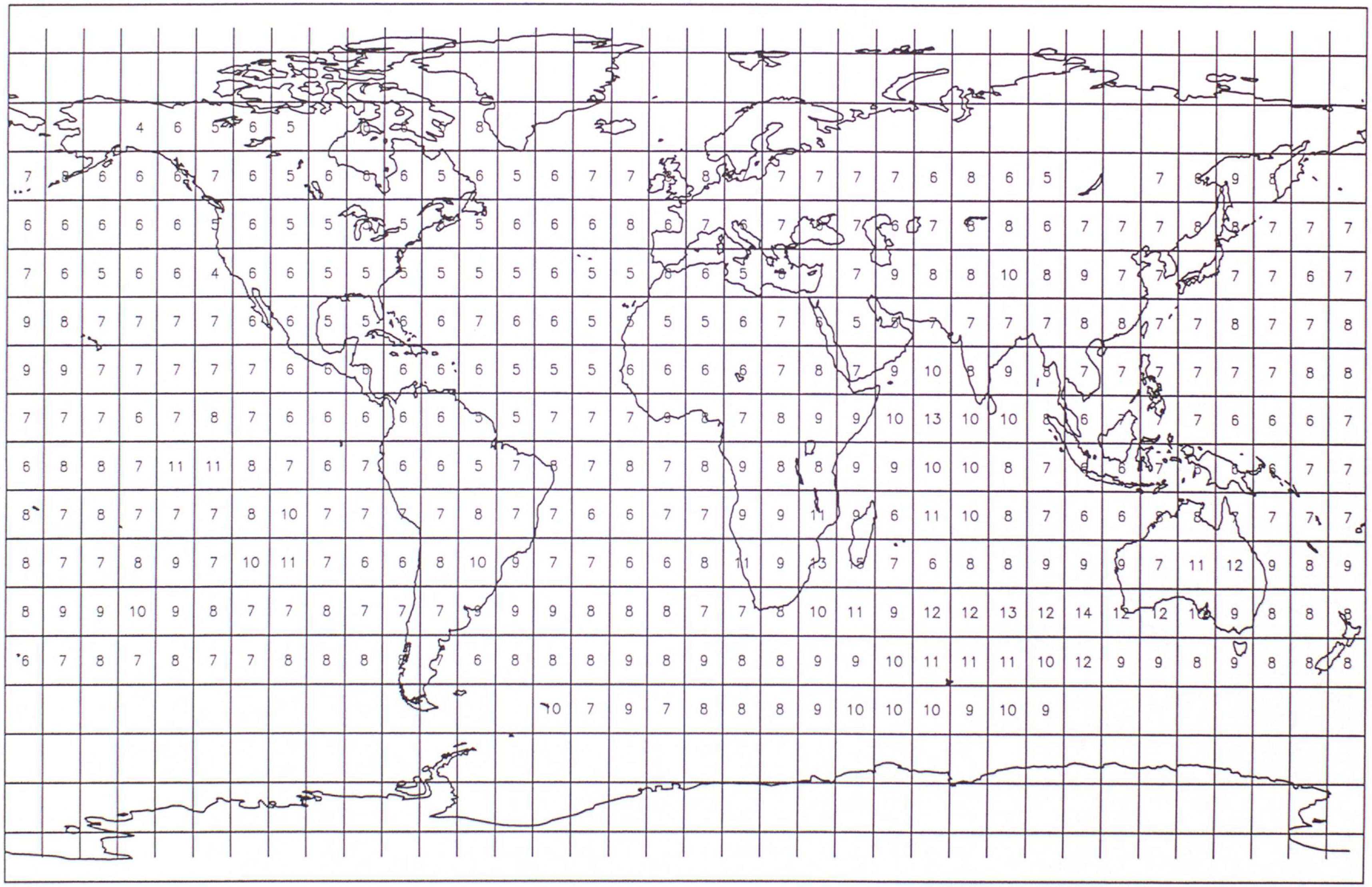
FIGURE 22



SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
AUGUST 1998
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
AUGUST 1998
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: BRACKNELL

MONTH: August 1998

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from NOAA-11, NOAA-14 500 km.
Standard of comparison	:Background field from Bracknell global model.
Selection Criteria	:All SATEM soundings where number of observations > 30.
Data Extracted	:Layer: 850 - 1000 hPa 100 - 300 hPa 30 - 50 hPa
	:Mean observation minus background temperature differences

NO DATA AVAILABLE

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH: August 1998

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoy.
Area monitored		:10°N - 80°N, 85°W - 0°W
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:All hours combined.
Elements monitored		:Mean sea-level pressure (hPa) :Wind speed (m s^{-1}) :Wind direction (degrees)
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. A positive bias indicates the observation is veered to the background**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors
GROSS ERROR LIMITS	:15 hPa (pressure) :25 m s^{-1} (Vector Wind)	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
13502	15.7	-44.7	ALL	P	SUR	242	0	0	0.9	0.1	0.9
13503	19.0	-43.6	ALL	P	SUR	253	0	0	0.9	-0.6	1.1
13906	26.6	-49.1	ALL	P	SUR	230	0	0	0.8	-0.3	0.8
13912	18.0	-66.4	ALL	P	SUR	15	0	0	0.9	-1.3	1.6
13913	14.6	-60.7	ALL	P	SUR	163	0	0	1.2	-0.7	1.4
39808	26.4	-52.8	ALL	P	SUR	17	0	0	1.2	-0.2	1.2
41502	21.3	-44.4	ALL	P	SUR	222	0	0	0.9	0.0	0.9
41503	18.7	-56.1	ALL	P	SUR	253	0	0	1.1	0.4	1.2
41504	24.8	-68.2	ALL	P	SUR	166	0	0	1.1	0.8	1.4
41505	25.2	-70.7	ALL	P	SUR	149	0	0	1.7	0.3	1.8
41506	16.3	-61.5	ALL	P	SUR	112	0	0	1.6	2.2	2.7
41520	22.0	-44.0	ALL	P	SUR	247	0	0	0.9	0.5	1.0
41521	23.3	-55.9	ALL	P	SUR	282	0	0	0.9	0.2	0.9
41528	26.1	-69.7	ALL	P	SUR	146	0	0	1.1	0.9	1.4
41597	32.2	-21.5	ALL	P	SUR	557	0	0	0.6	0.0	0.6
41598	23.7	-43.7	ALL	P	SUR	756	34	4	1.1	0.2	1.1
41599	22.6	-37.7	ALL	P	SUR	663	41	6	0.9	-0.4	0.9
41601	19.6	-44.1	ALL	P	SUR	794	0	0	1.1	1.9	2.2
41625	28.4	-70.3	ALL	P	SUR	168	0	0	0.9	0.5	1.1
41626	27.3	-73.9	ALL	P	SUR	171	2	1	1.8	0.1	1.8
41629	25.4	-71.4	ALL	P	SUR	159	1	1	1.4	0.4	1.4
41633	12.6	-49.1	ALL	P	SUR	548	22	4	1.1	0.2	1.1
41634	12.8	-53.2	ALL	P	SUR	133	3	2	0.8	0.5	1.0
41635	19.9	-52.3	ALL	P	SUR	589	58	10	1.3	1.3	1.9
41636	18.6	-50.4	ALL	P	SUR	759	59	8	1.1	0.0	1.1
41637	22.4	-48.3	ALL	P	SUR	296	23	8	0.9	-0.2	0.9
41638	20.9	-54.3	ALL	P	SUR	601	6	1	1.2	0.1	1.2
41924	22.5	-53.8	ALL	P	SUR	182	0	0	1.0	-2.5	2.7
42522	26.6	-84.2	ALL	P	SUR	135	0	0	0.9	0.6	1.1
44601	54.6	-44.9	ALL	P	SUR	834	75	9	1.0	0.4	1.0
44602	51.9	-37.4	ALL	P	SUR	757	44	6	0.9	0.6	1.0
44603	55.0	-45.5	ALL	P	SUR	929	0	0	1.0	-0.1	1.0
44604	49.0	-36.2	ALL	P	SUR	648	0	0	1.0	0.2	1.0
44606	53.3	-46.6	ALL	P	SUR	1165	0	0	1.0	0.0	1.0
44609	58.9	-21.4	ALL	P	SUR	1412	4	0	1.3	0.5	1.4
44613	39.8	-36.4	ALL	P	SUR	760	7	1	0.8	0.0	0.8
44616	50.4	-20.7	ALL	P	SUR	18	3	17	2.5	-0.2	2.5
44617	54.1	-15.0	ALL	P	SUR	1279	5	0	1.0	0.2	1.0
44621	54.6	-8.4	ALL	P	SUR	921	5	1	1.1	-0.3	1.2
44726	54.6	-36.5	ALL	P	SUR	1384	3	0	1.2	0.0	1.2
44727	60.0	-17.0	ALL	P	SUR	2264	6	0	1.0	-0.1	1.1
44742	45.1	-32.1	ALL	P	SUR	892	3	0	0.9	0.0	0.9
44743	45.6	-50.1	ALL	P	SUR	804	3	0	1.4	-0.1	1.5
44760	33.1	-30.5	ALL	P	SUR	41	0	0	0.5	-0.4	0.6
44765	58.4	-48.9	ALL	P	SUR	59	3	5	1.6	-0.5	1.7
44767	51.9	-45.2	ALL	P	SUR	672	2	0	1.1	-0.4	1.2
44768	57.2	-15.7	ALL	P	SUR	1524	6	0	1.0	0.2	1.1
44770	58.2	-31.9	ALL	P	SUR	1684	2	0	1.4	-0.4	1.4
44772	48.3	-35.7	ALL	P	SUR	155	0	0	2.0	-0.8	2.1
44773	55.5	-11.9	ALL	P	SUR	1398	6	0	1.0	0.1	1.0
44774	51.9	-42.7	ALL	P	SUR	1040	7	1	1.3	-1.0	1.7
44775	57.0	-33.3	ALL	P	SUR	1549	6	0	1.1	0.2	1.1
44776	47.9	-42.8	ALL	P	SUR	1008	4	0	1.1	-0.1	1.1
44778	55.6	-57.1	ALL	P	SUR	1368	3	0	1.2	-0.3	1.3
44779	43.9	-42.1	ALL	P	SUR	854	7	1	1.0	0.1	1.0
44780	58.3	-15.5	ALL	P	SUR	1565	7	0	1.1	0.1	1.1
44805	42.9	-68.9	ALL	P	SUR	1	0	0	0.0	0.1	0.1
44901	54.7	-46.1	ALL	P	SUR	168	0	0	1.1	0.6	1.3
44912	52.0	-24.7	ALL	P	SUR	125	0	0	1.3	0.7	1.5
44925	54.9	-50.2	ALL	P	SUR	166	4	2	1.7	0.6	1.8

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
48518	73.6	-18.6	ALL	P	SUR	717	0	0	1.0	-0.2	1.0
62506	47.2	-10.1	ALL	P	SUR	538	0	0	0.7	0.2	0.7
62508	46.8	-6.4	ALL	P	SUR	868	0	0	0.7	0.3	0.7
62509	45.4	-4.8	ALL	P	SUR	736	0	0	0.7	0.0	0.7
62510	46.1	-4.8	ALL	P	SUR	750	0	0	0.7	0.4	0.8
62514	53.7	-33.7	ALL	P	SUR	439	0	0	1.1	0.5	1.2
62515	58.3	-32.9	ALL	P	SUR	569	0	0	1.2	0.2	1.3
62553	50.4	-9.7	ALL	P	SUR	566	19	3	1.2	0.0	1.2
62557	43.9	-5.5	ALL	P	SUR	35	16	46	6.6	8.0	10.4
62608	53.5	-19.5	ALL	P	SUR	1	0	0	0.0	2.2	2.2
62674	62.7	-16.9	ALL	P	SUR	522	0	0	1.0	-0.2	1.1
62758	44.5	-25.8	ALL	P	SUR	203	0	0	1.1	-0.3	1.1
62803	51.9	-45.2	ALL	P	SUR	413	0	0	1.0	-0.8	1.3
63666	68.3	-24.1	ALL	P	SUR	197	0	0	1.0	-0.2	1.1
64528	56.5	-14.1	ALL	P	SUR	1243	4	0	1.0	-0.3	1.1
64529	62.3	-28.2	ALL	P	SUR	1473	3	0	1.4	-0.2	1.4
64561	49.5	-9.0	ALL	P	SUR	830	10	1	1.0	0.4	1.0
64563	58.8	-24.9	ALL	P	SUR	1894	7	0	1.2	-0.2	1.3
65562	58.6	-11.2	ALL	P	SUR	1952	1	0	0.9	-0.4	1.0
65571	61.1	-26.6	ALL	P	SUR	1704	10	1	1.4	0.0	1.4
65581	59.9	-36.3	ALL	P	SUR	660	0	0	1.2	-0.4	1.2
65591	60.6	-40.9	ALL	P	SUR	1047	9	1	1.1	-0.2	1.1
65592	62.5	-22.7	ALL	P	SUR	1690	7	0	1.3	-0.2	1.3
65597	53.8	-14.0	ALL	P	SUR	1389	2	0	1.2	-0.2	1.2
WIND SPEED											
13502	15.7	-44.7	ALL	SPEED	SUR	281	0	0	3.0	0.3	3.1
13503	19.0	-43.6	ALL	SPEED	SUR	272	0	0	1.2	-1.0	1.5
33680	21.1	-67.7	ALL	SPEED	SUR	2	0	0	0.4	-2.4	2.4
39808	26.4	-52.8	ALL	SPEED	SUR	27	0	0	2.1	-1.7	2.7
41501	19.3	-45.9	ALL	SPEED	SUR	236	0	0	1.8	0.8	2.0
41502	21.3	-44.4	ALL	SPEED	SUR	235	0	0	2.4	0.1	2.4
41504	24.8	-68.2	ALL	SPEED	SUR	208	0	0	2.9	-2.9	4.1
41520	22.0	-44.0	ALL	SPEED	SUR	265	0	0	2.3	0.9	2.5
41521	23.3	-55.9	ALL	SPEED	SUR	298	0	0	1.2	-0.6	1.3
41522	12.5	-56.1	ALL	SPEED	SUR	317	0	0	4.4	-0.5	4.4
41523	18.3	-58.5	ALL	SPEED	SUR	253	1	0	2.2	-1.7	2.7
41528	26.1	-69.7	ALL	SPEED	SUR	9	0	0	0.0	1.3	1.3
41598	23.7	-43.7	ALL	SPEED	SUR	569	0	0	1.2	-0.6	1.3
41599	22.6	-37.7	ALL	SPEED	SUR	448	0	0	1.3	-0.3	1.3
41601	19.6	-44.1	ALL	SPEED	SUR	537	0	0	1.4	0.0	1.4
41625	28.4	-70.3	ALL	SPEED	SUR	210	0	0	1.5	-1.1	1.8
41626	27.3	-73.9	ALL	SPEED	SUR	222	0	0	2.5	-1.0	2.7
41629	25.4	-71.4	ALL	SPEED	SUR	182	0	0	2.8	-0.8	2.9
41633	12.6	-49.1	ALL	SPEED	SUR	537	0	0	2.6	0.1	2.6
41634	12.8	-53.2	ALL	SPEED	SUR	141	0	0	1.2	-0.6	1.4
41635	19.9	-52.3	ALL	SPEED	SUR	371	0	0	1.5	-0.2	1.5
41636	18.6	-50.4	ALL	SPEED	SUR	492	0	0	1.7	-0.8	1.9
41637	22.4	-48.3	ALL	SPEED	SUR	182	0	0	2.0	0.5	2.1
41638	20.9	-54.3	ALL	SPEED	SUR	404	0	0	1.8	-0.4	1.8
44601	54.6	-44.9	ALL	SPEED	SUR	655	0	0	1.9	0.7	2.0
44602	51.9	-37.4	ALL	SPEED	SUR	554	2	0	2.1	0.4	2.1
44609	58.9	-21.4	ALL	SPEED	SUR	1256	1	0	4.0	-0.5	4.1
44613	39.8	-36.4	ALL	SPEED	SUR	1	0	0	0.0	39.4	39.4
44617	54.1	-15.0	ALL	SPEED	SUR	3	0	0	5.3	20.2	20.9
44773	55.5	-11.9	ALL	SPEED	SUR	2013	2	0	2.6	-3.0	3.9
44774	51.9	-42.7	ALL	SPEED	SUR	2	0	0	0.0	12.0	12.0
44778	55.6	-57.1	ALL	SPEED	SUR	2	0	0	0.0	-7.3	7.3
44805	42.9	-68.9	ALL	SPEED	SUR	2	0	0	0.0	-0.7	0.7
62553	50.4	-9.7	ALL	SPEED	SUR	769	19	2	1.4	-1.2	1.9
62674	62.7	-16.9	ALL	SPEED	SUR	849	0	0	2.2	-1.6	2.7
62758	44.5	-25.8	ALL	SPEED	SUR	931	3	0	1.6	-0.2	1.6

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND DIRECTION											
13502	15.7	-44.7	ALL	DIRN.	SUR	193	0	0	23.6	-11.8	26.4
13503	19.0	-43.6	ALL	DIRN.	SUR	232	0	0	13.8	14.0	19.6
33680	21.1	-67.7	ALL	DIRN.	SUR	2	0	0	3.1	-12.0	12.4
39808	26.4	-52.8	ALL	DIRN.	SUR	7	0	0	39.6	3.9	39.8
41501	19.3	-45.9	ALL	DIRN.	SUR	217	0	0	16.9	-4.0	17.4
41502	21.3	-44.4	ALL	DIRN.	SUR	203	0	0	14.7	0.9	14.8
41503	18.7	-56.1	ALL	DIRN.	SUR	248	0	0	25.8	17.1	31.0
41504	24.8	-68.2	ALL	DIRN.	SUR	117	0	0	25.0	4.2	25.4
41520	22.0	-44.0	ALL	DIRN.	SUR	226	0	0	14.4	-3.6	14.8
41521	23.3	-55.9	ALL	DIRN.	SUR	264	0	0	12.0	-10.9	16.2
41522	12.5	-56.1	ALL	DIRN.	SUR	96	0	0	36.0	-2.0	36.0
41523	18.3	-58.5	ALL	DIRN.	SUR	159	1	1	16.8	7.2	18.3
41598	23.7	-43.7	ALL	DIRN.	SUR	433	0	0	15.1	-3.8	15.5
41599	22.6	-37.7	ALL	DIRN.	SUR	429	0	0	15.8	8.6	18.0
41601	19.6	-44.1	ALL	DIRN.	SUR	524	0	0	13.9	-9.6	16.8
41625	28.4	-70.3	ALL	DIRN.	SUR	106	0	0	40.9	6.4	41.4
41626	27.3	-73.9	ALL	DIRN.	SUR	114	0	0	28.2	-5.3	28.7
41629	25.4	-71.4	ALL	DIRN.	SUR	127	0	0	35.8	9.7	37.1
41633	12.6	-49.1	ALL	DIRN.	SUR	172	0	0	30.3	-23.3	38.2
41634	12.8	-53.2	ALL	DIRN.	SUR	40	0	0	16.7	-4.8	17.4
41636	18.6	-50.4	ALL	DIRN.	SUR	493	0	0	18.1	-38.7	42.8
41637	22.4	-48.3	ALL	DIRN.	SUR	174	0	0	15.9	-11.3	19.5
41638	20.9	-54.3	ALL	DIRN.	SUR	364	0	0	20.3	9.0	22.2
44601	54.6	-44.9	ALL	DIRN.	SUR	355	0	0	24.4	-1.8	24.5
44602	51.9	-37.4	ALL	DIRN.	SUR	332	2	1	25.7	4.1	26.0
44609	58.9	-21.4	ALL	DIRN.	SUR	924	1	0	20.5	-0.5	20.5
44727	60.0	-17.0	ALL	DIRN.	SUR	1	0	0	0.0	2.5	2.5
44773	55.5	-11.9	ALL	DIRN.	SUR	665	2	0	18.2	-11.2	21.4
62553	50.4	-9.7	ALL	DIRN.	SUR	311	19	6	12.5	-4.8	13.4
62608	53.5	-19.5	ALL	DIRN.	SUR	1	0	0	0.0	4.4	4.4
62674	62.7	-16.9	ALL	DIRN.	SUR	170	0	0	13.9	-14.1	19.8
62758	44.5	-25.8	ALL	DIRN.	SUR	283	3	1	16.9	-8.1	18.7
65562	58.6	-11.2	ALL	DIRN.	SUR	1	0	0	0.0	2.5	2.5

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: August 1998

Monitoring procedures:
Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :40°N - 70°N, 60°W - 0°W.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored :N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

NB: US ACARs and ADS data are shown at the bottom of the table as US ACAR and ADS respectively.

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	3373	1	29	2.2	-0.2	2523	0	15	0	8.4	1.0
ACA	2209	1	11	2.2	0.0	2006	0	5	0	6.9	0.6
AEA	253	2	26	2.3	0.5	216	0	20	0	8.9	0.8
AEL	591	1	21	1.4	-0.6	594	0	22	0	8.4	-0.2
AFL	382	1	13	2.5	0.6	349	0	4	0	7.1	0.2
AFR	1043	1	12	1.8	0.0	1042	0	12	0	8.0	0.8
AIH	111	1	7	1.7	-0.1	102	0	6	0	10.0	1.4
AJM	79	1	3	1.4	-0.5	76	0	3	0	8.5	1.5
AMT	34	0	9	1.7	0.7	35	0	11	0	13.5	3.8
AMX	222	0	5	1.7	0.0	219	1	8	0	8.6	0.8
ANZ	200	0	2	2.2	-1.2	197	0	3	0	6.6	1.1
AOM	322	1	5	1.6	0.8	324	0	5	0	7.2	1.4
AVA	135	1	4	1.5	-0.2	137	0	4	0	6.9	1.1
AZA	394	1	25	2.3	0.0	341	0	15	0	8.5	1.0
BAL	499	1	22	1.5	-0.5	495	0	22	0	8.2	0.5
BAW	1414	1	19	2.1	-0.2	1264	0	14	0	7.3	1.1
BBB	27	0	4	1.1	-0.7	25	0	4	0	4.8	0.2
BWA	91	0	11	1.9	1.1	87	0	9	0	8.5	1.1
CDN	801	1	16	2.1	0.2	708	0	9	0	8.5	1.3
CFG	517	1	5	1.7	-1.0	506	0	5	0	7.4	0.2
CKS	66	0	8	1.5	1.1	67	0	4	0	5.9	1.8
CKT	72	1	11	2.1	1.3	69	0	7	0	6.7	-0.2
CLX	316	1	10	2.2	-0.4	303	0	5	0	8.7	0.6
CMM	508	1	10	1.9	0.1	462	0	5	0	6.6	1.1
COA	934	1	22	1.9	0.0	769	1	16	0	12.9	2.4
CRL	289	1	6	1.7	0.8	283	0	5	0	8.6	0.8
CTB	354	0	2	1.8	-0.7	360	0	3	0	7.5	0.4
CTM	25	0	8	2.4	-0.6	26	0	8	0	6.3	0.7
CUB	228	1	11	1.7	0.6	216	0	11	0	8.7	0.3
DAF	24	0	0	2.7	-1.8	23	0	0	0	7.5	1.8
DAL	2448	1	33	2.1	-0.5	1800	0	21	0	8.8	1.0
DBY	157	1	4	1.3	-1.0	153	0	4	0	6.3	0.1
DHL	153	11	100	6.1	-4.2	108	0	24	0	10.8	0.1
DLH	2414	1	18	2.1	-0.1	2098	0	12	0	7.7	0.9
ELY	198	2	12	1.8	-0.1	187	0	17	0	12.5	1.4
EWW	97	0	23	2.7	0.3	86	0	100	0	16.9	2.8
FDX	345	2	30	1.9	0.7	268	0	15	0	8.0	1.7
FIN	589	0	25	2.3	0.4	434	0	14	0	7.9	0.7
GAF	141	0	32	2.6	-0.1	104	0	18	0	8.2	2.4
GRL	35	0	0	1.3	0.2	34	0	0	0	5.5	1.3
GTI	52	0	31	3.0	0.8	41	0	20	0	7.5	0.0
HLF	64	0	6	1.4	-0.7	61	0	7	0	9.4	1.7
IBE	1108	1	29	1.9	0.3	982	0	26	0	8.7	1.0
ICE	930	2	32	3.0	0.6	713	0	17	0	7.9	1.1
JKK	165	1	30	1.8	-0.4	134	1	25	0	8.8	0.1
KLM	2493	0	25	2.0	0.0	2361	0	24	0	7.6	0.7
LDA	96	0	42	2.3	-0.9	75	0	35	0	6.6	-0.1
LDI	307	1	37	1.8	-1.0	271	0	32	0	7.8	0.1
LEI	132	0	14	1.8	0.5	111	0	10	0	8.4	1.0
LIB	131	3	5	1.6	0.8	135	0	4	0	7.5	1.1
LOT	333	1	31	2.3	-1.1	244	0	21	0	9.5	1.4
LTU	517	1	24	1.7	-0.1	453	0	19	0	8.0	0.6
LXR	73	1	16	1.7	0.5	69	0	20	0	10.5	-0.5
MAH	42	2	19	2.3	0.3	35	0	6	0	7.4	0.2
MAS	64	0	16	2.0	-0.1	61	2	16	0	12.1	1.2
MON	91	0	14	1.4	0.1	81	0	9	0	6.6	0.8
MPD	89	0	13	1.7	0.7	76	0	9	0	8.0	0.9
MPH	681	0	8	1.9	-0.6	625	0	4	0	7.8	0.4
NWA	3605	0	12	2.1	0.6	3277	0	6	0	8.3	0.7

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
OAL	31	0	13	2.5	1.6	28	0	11	0	7.3	3.1
PAC	102	2	27	2.0	-0.1	83	2	30	0	10.1	-0.1
RAM	87	0	6	1.7	-0.7	76	1	5	0	7.1	0.7
RCH	242	1	24	2.4	0.4	206	0	18	0	9.0	1.4
RJA	86	1	27	2.4	0.3	64	0	16	0	6.8	0.2
ROY	435	1	18	2.3	-0.3	376	0	12	0	9.5	1.2
RRR	92	2	22	2.3	-0.4	78	3	21	0	10.4	2.2
SAB	71	1	18	2.0	0.4	62	0	8	0	6.7	1.2
SAS	1227	0	1	1.9	-0.2	1218	0	2	0	7.8	0.4
SIA	118	2	8	2.1	-1.3	119	0	6	0	6.3	0.6
SLR	100	0	15	1.6	-0.1	98	0	16	0	9.4	1.1
SVA	178	2	15	2.1	-0.6	181	0	11	0	8.9	0.3
SWR	193	2	28	1.8	0.6	148	0	16	0	7.3	2.8
TAP	300	0	5	1.4	-0.6	274	0	7	0	10.0	0.2
TOW	179	1	30	1.7	0.1	133	0	16	0	7.3	1.2
TSC	339	2	22	2.4	0.7	284	0	12	0	7.6	1.4
TWA	1431	0	33	2.2	0.3	1027	0	20	0	8.1	1.1
UAL	2035	1	15	2.2	-0.1	1771	0	8	0	7.2	0.9
UPS	455	0	37	2.2	0.1	389	0	29	0	8.9	0.4
USA	266	0	25	2.0	0.0	211	0	17	0	8.5	0.4
VIR	331	1	15	2.3	-0.4	296	0	7	0	7.3	0.8
VKG	48	0	8	2.0	0.0	48	0	6	0	6.9	1.2
BA	5580	2	2	1.4	0.3	5581	0	11	0	6.8	0.6
KL	3959	0	1	1.7	0.9	3962	0	34	0	6.4	0.8
LH	742	0	0	1.6	0.7	742	0	0	0	5.5	0.6
SV	218	0	0	1.5	1.1	218	0	0	0	6.4	1.5
N	272	1	13	2.4	0.3	250	0	9	0	9.6	0.9
US ACARS	14112	0	3	1.5	0.3	14112	0	1	0	6.6	0.7

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: August 1998

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	100	18	0	11.5	11.6	1.5
DBBH	12	Z	100	23	0	14.9	15.6	-4.6
DBLK	12	Z	100	1	0	0.0	31.0	31.0
ELML7	00	Z	100	16	0	16.5	18.1	-7.6
ELML7	12	Z	100	16	0	13.4	13.6	-2.5
FNOU	00	Z	100	18	0	11.5	12.8	-5.6
FNOU	12	Z	100	15	0	12.5	16.8	-11.3
FNPH	00	Z	100	12	0	16.5	18.8	-9.1
FNPH	12	Z	100	12	0	10.9	16.2	-11.9
FNRS	00	Z	100	17	0	11.7	15.2	-9.8
FNRS	12	Z	100	16	0	15.9	21.4	-14.4
JBOA	00	Z	100	1	0	0.0	19.0	19.0
JIVB	00	Z	100	1	0	0.0	2.0	2.0
LDWR	00	Z	100	30	0	9.2	10.8	5.7
LDWR	12	Z	100	26	0	8.8	9.3	-3.0
OVYA2	00	Z	100	10	0	15.4	16.5	-5.9
OVYA2	12	Z	100	10	0	17.0	24.0	-17.0
OXYH2	00	Z	100	16	0	21.6	25.1	-12.9
OXYH2	12	Z	100	16	0	19.6	23.7	-13.4
THNOG	00	Z	100	1	0	0.0	17.0	17.0
V2VM	00	Z	100	15	0	18.5	28.7	-21.9
V2VM	12	Z	100	14	0	15.8	32.2	-28.1
V2XM	00	Z	100	9	1	21.8	22.2	4.1
V2XM	12	Z	100	12	0	17.2	20.1	-10.3
03953	00	Z	100	27	0	13.3	15.2	7.3
03953	12	Z	100	27	0	12.8	13.7	4.8
04018	00	Z	100	27	0	16.6	18.1	7.4
04018	12	Z	100	28	0	14.9	16.0	5.8
04220	00	Z	100	4	0	8.2	15.1	12.8
04220	12	Z	100	7	0	12.2	13.1	4.9
04270	00	Z	100	30	0	11.0	11.4	-3.2
04270	12	Z	100	30	0	13.3	16.8	-10.3
04339	00	Z	100	24	0	13.6	18.1	12.0
04339	12	Z	100	23	0	9.3	13.9	10.3
04360	00	Z	100	30	0	10.9	13.8	8.5
04360	12	Z	100	28	0	9.7	10.9	4.9
08001	00	Z	100	17	0	10.8	10.8	-1.2
08001	12	Z	100	22	0	13.9	19.7	-14.0
08508	12	Z	100	11	0	11.2	15.4	-10.6
08522	00	Z	100	1	0	0.0	9.0	-9.0
08522	12	Z	100	17	0	9.0	18.7	-16.4
08594	12	Z	100	10	0	10.9	10.9	0.1
60020	00	Z	100	18	0	7.0	7.2	1.6
60020	12	Z	100	16	0	8.5	9.5	-4.3
71600	00	Z	100	30	0	9.4	9.8	2.6
71600	12	Z	100	29	0	7.5	11.8	-9.1
72201	00	Z	100	23	0	19.8	28.0	19.7
72201	12	Z	100	29	0	18.3	31.6	25.8
72402	00	Z	100	29	0	13.7	24.3	20.0
72402	12	Z	100	30	0	17.1	31.9	26.9
74494	00	Z	100	23	0	11.9	12.0	1.2
74494	12	Z	100	25	0	8.5	24.2	-22.7
78016	00	Z	100	25	0	20.4	20.8	4.1
78016	12	Z	100	24	0	23.8	23.9	-2.7

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: August 1998

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	500	21	0	7.5	18.6	17.0
DBBH	12	Z	500	25	0	9.9	12.1	7.0
DBLK	12	Z	500	1	0	0.0	8.0	8.0
ELML7	00	Z	500	16	0	12.1	12.5	3.2
ELML7	12	Z	500	16	0	11.5	12.8	5.6
FNOU	00	Z	500	19	0	8.4	11.4	7.7
FNOU	12	Z	500	16	0	7.7	10.3	6.8
FNPH	00	Z	500	14	0	16.1	16.1	1.1
FNPH	12	Z	500	13	0	8.1	8.2	-0.5
FNRS	00	Z	500	17	0	9.1	9.4	-2.1
FNRS	12	Z	500	16	0	7.4	7.6	-1.6
JBOA	00	Z	500	1	0	0.0	10.0	10.0
JIVB	00	Z	500	1	0	0.0	1.0	1.0
LDWR	00	Z	500	30	0	9.3	10.3	4.4
LDWR	12	Z	500	26	0	7.9	8.2	-2.3
OVYA2	00	Z	500	11	0	15.4	20.6	-13.6
OVYA2	12	Z	500	11	0	11.9	24.9	-21.8
OXYH2	00	Z	500	17	0	15.0	25.4	-20.5
OXYH2	12	Z	500	17	0	12.9	24.0	-20.2
SHIP	00	Z	500	1	0	0.0	102.0	102.0
THNOG	00	Z	500	1	0	0.0	2.0	2.0
V2VM	00	Z	500	16	0	9.1	14.8	-11.7
V2VM	12	Z	500	14	0	7.6	14.2	-11.9
V2XM	00	Z	500	10	1	10.7	12.0	5.5
V2XM	12	Z	500	13	0	13.0	14.3	-6.0
03953	00	Z	500	31	0	8.1	16.4	14.3
03953	12	Z	500	29	0	8.2	12.2	9.0
04018	00	Z	500	31	0	13.3	15.5	7.8
04018	12	Z	500	30	0	9.8	10.1	2.7
04220	00	Z	500	31	0	11.7	11.7	0.6
04220	12	Z	500	29	0	12.6	12.7	-1.7
04270	00	Z	500	30	0	11.4	11.5	1.3
04270	12	Z	500	30	0	13.1	14.4	-6.0
04339	00	Z	500	31	0	11.4	15.1	9.9
04339	12	Z	500	30	0	9.6	10.4	4.0
04360	00	Z	500	31	0	10.0	10.8	3.9
04360	12	Z	500	29	0	10.7	10.8	-1.6
08001	00	Z	500	30	0	8.0	10.5	6.8
08001	12	Z	500	29	0	8.2	9.5	-4.8
08508	00	Z	500	1	0	0.0	6.0	-6.0
08508	12	Z	500	28	0	12.3	12.9	3.8
08522	00	Z	500	1	0	0.0	16.0	-16.0
08522	12	Z	500	17	0	10.9	11.3	2.8
08594	00	Z	500	1	0	0.0	7.0	7.0
08594	12	Z	500	10	0	5.4	7.6	5.3
60020	00	Z	500	31	0	8.0	10.2	6.3
60020	12	Z	500	30	0	7.9	8.0	1.3
71600	00	Z	500	30	0	9.4	9.5	0.8
71600	12	Z	500	29	0	9.0	9.2	1.7
72201	00	Z	500	25	0	7.5	11.7	8.9
72201	12	Z	500	29	0	7.0	13.4	11.4
72402	00	Z	500	29	0	7.9	9.4	5.1
72402	12	Z	500	30	0	9.1	11.0	6.1
74494	00	Z	500	29	1	8.7	8.7	-0.1
74494	12	Z	500	30	0	8.4	8.4	-0.3
78016	00	Z	500	25	0	10.0	16.6	13.3
78016	12	Z	500	24	0	9.2	15.8	12.8

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: August 1998

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	100	12	0	0	0.0	-0.6	-1.6
DBBH	12	V	100	23	0	0	3.8	-0.1	-0.2
DBLK	12	V	100	1	0	0	2.7	0.4	1.1
ELML7	00	V	100	6	0	0	2.2	-0.6	1.8
ELML7	12	V	100	10	0	0	2.2	0.4	-1.9
FNOU	00	V	100	16	0	0	3.7	-1.9	-0.4
FNOU	12	V	100	14	0	0	2.7	0.1	-0.8
FNPH	00	V	100	12	0	0	2.4	-0.8	1.7
FNPH	12	V	100	12	0	0	3.6	1.6	-1.5
FNRS	00	V	100	16	0	0	2.9	0.4	0.8
FNRS	12	V	100	14	0	0	3.3	1.4	0.8
JBOA	00	V	100	1	0	0	2.5	2.5	2.3
JIVB	00	V	100	1	0	0	2.5	-0.1	-1.8
LDWR	00	V	100	30	0	0	2.5	-0.3	0.3
LDWR	12	V	100	26	0	0	1.2	0.0	0.3
OVYA2	00	V	100	8	0	0	1.4	-0.6	1.4
OVYA2	12	V	100	9	0	0	1.4	0.1	0.0
OXYH2	00	V	100	14	0	0	1.4	0.0	-0.9
OXYH2	12	V	100	14	0	0	3.6	0.2	1.2
THNOG	00	V	100	1	0	0	5.3	-2.1	-1.9
V2VM	00	V	100	15	0	0	2.1	1.2	0.1
V2VM	12	V	100	14	0	0	4.9	1.0	0.0
V2XM	00	V	100	8	0	0	2.8	-0.5	-0.1
V2XM	12	V	100	12	0	0	2.8	-0.5	1.3
03953	00	V	100	27	0	0	2.0	-0.3	0.6
03953	12	V	100	27	0	0	1.5	-0.6	0.5
04018	00	V	100	23	0	0	1.9	0.1	1.2
04018	12	V	100	11	0	9	2.4	1.1	1.9
04220	00	V	100	1	0	0	4.8	0.3	1.0
04220	12	V	100	3	0	0	4.8	1.0	0.3
04270	00	V	100	28	0	0	4.8	-0.1	0.6
04270	12	V	100	30	0	0	2.5	-0.2	1.3
04339	00	V	100	24	0	0	3.0	0.4	0.0
04339	12	V	100	22	0	0	4.1	-2.0	0.9
04360	00	V	100	27	0	0	3.1	-0.7	-0.4
04360	12	V	100	28	0	0	1.6	-0.9	-0.1
08001	00	V	100	17	0	0	2.9	0.6	2.0
08001	12	V	100	19	0	0	2.2	0.0	0.8
08508	12	V	100	11	0	0	3.1	-1.5	-1.6
60020	00	V	100	14	0	0	8.2	-3.7	-0.2
60020	12	V	100	11	0	0	5.3	3.0	-0.9
71600	00	V	100	30	0	3	2.8	0.0	1.5
71600	12	V	100	29	0	0	3.9	-0.6	0.4
72201	00	V	100	23	0	0	3.5	-0.3	-0.5
72201	12	V	100	29	0	0	2.5	-0.2	-0.2
72402	00	V	100	29	0	0	2.1	-1.4	0.5
72402	12	V	100	29	0	0	2.5	-1.2	-1.2
74494	00	V	100	23	0	0	1.7	-1.1	1.2
74494	12	V	100	24	0	0	1.6	-1.2	-0.1
78016	00	V	100	25	0	0	6.9	0.1	-1.2
78016	12	V	100	24	0	0	3.2	-1.1	1.1

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: August 1998

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS:	Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	500	19	0	5	5.6	0.4	0.6
DBBH	12	V	500	23	0	0	2.5	-1.2	-1.1
DBLK	12	V	500	1	0	0	2.6	0.7	2.8
ELML7	00	V	500	5	0	0	3.4	-0.9	0.4
ELML7	12	V	500	10	0	0	3.4	0.7	-0.4
FNOU	00	V	500	18	0	0	3.4	-0.9	-1.0
FNOU	12	V	500	14	0	0	2.4	-1.3	0.1
FNPH	00	V	500	14	0	0	2.6	-0.1	-0.1
FNPH	12	V	500	13	0	0	3.9	0.5	-0.2
FNRS	00	V	500	16	0	0	3.2	0.0	-0.6
FNRS	12	V	500	15	0	0	2.1	0.4	-0.4
JBOA	00	V	500	1	0	0	2.1	0.5	0.0
JIVB	00	V	500	1	0	0	2.1	1.7	2.0
LDWR	00	V	500	30	0	0	2.1	-0.4	0.0
LDWR	12	V	500	26	0	0	2.7	0.3	0.4
OVYA2	00	V	500	9	0	0	3.2	1.6	-0.7
OVYA2	12	V	500	11	0	0	3.9	0.0	-0.3
OXYH2	00	V	500	15	0	6	2.8	2.5	-2.0
OXYH2	12	V	500	17	0	0	4.9	0.4	0.2
THNOG	00	V	500	1	0	0	5.4	-0.4	-0.3
V2VM	00	V	500	14	0	0	2.2	0.3	1.0
V2VM	12	V	500	14	0	0	2.9	0.8	0.0
V2XM	00	V	500	8	0	0	3.6	0.4	0.3
V2XM	12	V	500	12	0	8	3.6	0.4	2.4
03953	00	V	500	31	0	0	2.5	1.1	-0.4
03953	12	V	500	29	0	0	3.6	1.1	-1.7
04018	00	V	500	29	0	0	3.5	1.7	0.3
04018	12	V	500	17	0	0	4.3	3.2	-0.3
04220	00	V	500	30	0	0	4.9	-0.2	0.6
04220	12	V	500	23	0	0	4.1	-1.5	-0.9
04270	00	V	500	28	0	0	3.6	0.5	-0.1
04270	12	V	500	27	0	0	3.1	-0.6	0.4
04339	00	V	500	28	0	3	2.6	0.7	-1.2
04339	12	V	500	30	0	0	4.1	0.4	-1.4
04360	00	V	500	30	0	0	3.9	-0.1	0.1
04360	12	V	500	28	0	0	3.0	0.3	0.4
08001	00	V	500	30	0	0	2.6	0.3	-1.0
08001	12	V	500	27	0	0	2.8	-0.4	-0.7
08508	00	V	500	1	0	0	3.2	-2.8	-2.0
08508	12	V	500	28	0	0	3.2	-0.1	0.7
60020	00	V	500	26	0	0	3.3	0.8	0.8
60020	12	V	500	25	0	0	3.3	0.8	0.5
71600	00	V	500	30	0	3	2.6	-0.6	0.0
71600	12	V	500	29	0	0	4.0	0.4	0.4
72201	00	V	500	25	0	0	2.5	1.0	-1.1
72201	12	V	500	29	0	0	1.8	0.5	-0.5
72402	00	V	500	29	0	0	2.1	0.1	0.3
72402	12	V	500	30	0	0	2.2	0.0	0.5
74494	00	V	500	30	0	0	2.0	0.0	-0.4
74494	12	V	500	30	0	0	2.6	0.9	1.2
78016	00	V	500	24	0	0	6.2	0.3	-0.7
78016	12	V	500	22	1	4	2.0	6.8	-2.1

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5, 10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45